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EXPERIENCES IN CHINA.*

BY CAPTAIN JOSEPH T. DICKMAN, EIGHTH U. S. CAVALRY.

IN THE latter part of the month of July, 1900, telegraphic orders from the War Department at Washington directed certain officers to report to General CHAFFEE, commander of the China Relief Expedition, for duty on his staff, and also to observe the foreign armies and make a report on them. This detail found me in the center of Panay, one of our large southern islands of the Visayan group, at the town of Pototan, where the gentle Filipino was trying to make it interesting for us. The telegram from General HUGHES was to "pack my war bag promptly," so as to catch the next steamer for Manila. The Filipinos were at that time organizing for increased activity, in the vain delusion that by resisting the American authorities and shooting at the flag they could influence the elections in the United States in their favor. When they heard of the war in China, there was great satisfaction, for they supposed that two wars at the same time would be too much for the Americans to handle. The *presidente* and the *principales* of the town accordingly assembled at our headquarters to bid me farewell, expressing their grief at my going, wishing a safe voyage and speedy return.

A change from the constant marching, scouting and continual alertness being welcome, no time was lost in getting aboard the *Isla de Negros,* leaving for Manila. The voyage on the blue waters among

*Read before the Kansas Commandery of the Military Order of the Loyal Legion of the United States.

those tropical islands is a delightful memory. Of those regions it may indeed be said that all nature is beautiful and only man is vile.

The next step was from Manila to Japan on the transport *Thomas,* a voyage of five days, covering a distance of 1,300 miles. We skirted along the coast of Luzon for two days, passed the light-house of Cape Bojeador, the Babuyanes and Batanes Islands, and the rocks of Balintang. We were hardly out of sight of the latter before the small islands belonging to Japan began to loom up. Many of these are mere jagged rocks sticking up out of the water. The shores of those bits of land are very steep, frequently precipitous on the eastern side, where the constant beating of the heavy swell of the Pacific during the northeast monsoon is undermining and wearing them away.

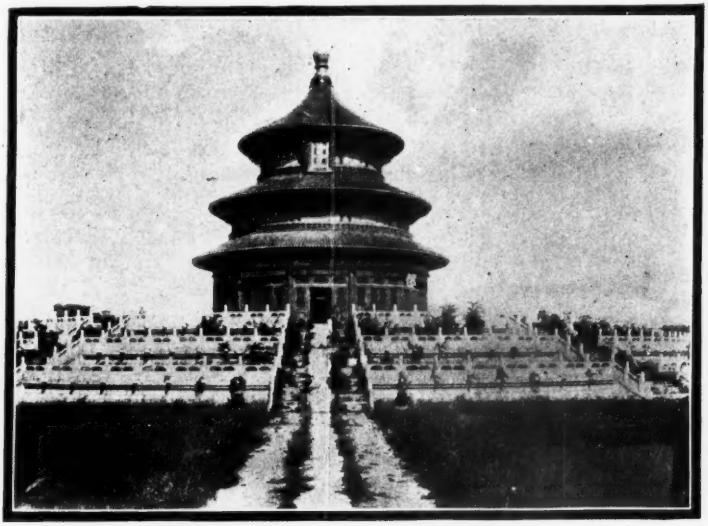
After the pompous little Japanese officers got through with their inspections, we passed up into the narrow harbor of Nagasaki. When entering a Japanese port for the first time, many curious sights attract our attention. The mountain scenery, the hillsides cultivated terrace upon terrace clear to the top, the war vessels, transports and hospital ships of all the great Powers, and the multitude of *sampans* swarming in the harbor and about the ships just arrived—all are very interesting. Unless guards are stationed at the ladder with positive orders, the ship will soon be overrun with hucksters, tailors, shoemakers, etc., ready to manufacture shoddy goods for you while you coal ship. This is another one of the sights of Japan, the coal being raised thirty feet up a human ladder composed principally of women and children, from the lighter to the porthole of the ship, passing from hand to hand in little straw baskets of the size of a washbasin. By keeping up a constant stream this human elevator accomplishes the result rather quickly. It looks like a great waste of labor; however, the human machine requires but little fuel in those countries.

After visiting the streets, shops, temples, and other points of interest, and riding about in *jinrickishas,* we transferred our belongings to the transport *Indiana,* and were off for the seat of war in China.

The distance from Nagasaki to Taku is about seven hundred miles. After leaving Japan, the first considerable island is Quelle-part, which lies south of the peninsula of Korea. Its principal peak rises to 6,500 feet, and is a fine landmark. In the Korean archipelago there are a great number of small islands of peculiar shape; the constant beating of the waves has left them with vertical sides facing the great ocean. The smaller ones appear to be uninhabited by man.

Naturally, when one enters the Yellow Sea, a suggestion of that color is looked for. Unless the name be derived from the faint yellow

haze prevalent at certain seasons, it must be classed with other geographical misnomers. The land on the far projecting promontory of Shantung looks bleak and desolate. Its hills compare very unfavorably with the terraced and verdant slopes of Japan. The Miao-tao group of islands stretches across the Gulf of Pechili one hundred and twenty-six miles from Taku. More than a whole day is taken up in traversing this great gulf. The blue waters change very gradually to green, becoming lighter and lighter, and passing finally into a yel-



TEMPLE OF HEAVEN, PEKING, 1900.

low, and growing dirty as you proceed west and approach the mouths of the Peiho and Hoangho.

Late in the afternoon of August 16th, as we were nearing our destination, mast after mast came into view, until finally we could count more than sixty vessels of the Christian powers riding at anchor. At night, with the search-light and signal systems of the warships in operation, the sight was still more imposing. Next morning we could make out the flags of various nations and observe the forms of the men-of-war and the disposition of their fighting tops.

Many nations were represented in the allied fleet at Taku, though the interest of some of them seemed very remote. The shore was barely visible, and there was no object of interest to break its low monotony. The process by which the Peiho and Hoangho in past

ages built the great plain extending to the east, south and west of Taku is still going on, and will eventually fill up the bay. At present first-class ships cannot go much nearer than ten miles from shore, and even then the propeller stirs up the mud. The large lighter, *Foochow,* received the cargo and passengers and one battalion of the Fifteenth Infantry. By taking advantage of the tide, we passed the bar and were soon in the muddy outflow of the Peiho. The outline of the earthworks known as the forts of Taku now became clear, and the large guns mounted *en barbette* loomed up against the horizon. As we passed the fort we could see that the guns had not been damaged much and that the works were practically intact, which agrees completely with the usual results of bombarding earthworks by a fleet. If the Chinese had had the courage to stand by their guns, they might have inflicted much loss on the fleet. The course of the river is very crooked, so that we soon gave up any attempt to form a mental picture of its windings. The American flag was flying in several prominent places, and never looked more beautiful.

The country is very low and flat, partly covered with water. The surface is dotted with many mounds of various sizes. These are graves, salt-piles or ice-houses. The Chinese houses are built of *adobe* or of reeds plastered with mud. Being of the color of the earth, they make no contrast and are scarcely visible in the landscape. The whole presents an appearance of wretched squalor, monotonous in the extreme. If such is the impression in summer, in winter the place is only to be compared with the Arctic Siberian marshes.

At Tongku the United States had a quartermaster and a dock. Here we had our first view of the Cossacks, the nomads of the Steppe. Their horses were of all colors, scrubby, shaggy and dirty, with stallions, mares and even colts among them. The men had no tents, but made shelters of pieces of canvas, sheets of corrugated iron, matting, or similar articles. They seemed heavy-set, husky fellows, perfectly at home in their surroundings.

The railroad for Peking passes Tongku. It was then in operation as far as Tientsin only. It is double track, standard gauge, well ballasted and solidly constructed throughout. It was managed, or rather mismanaged, by Russian officers and troops. They were railroad troops, and had some notions of running a railroad, but cleanliness was not one of them. The big high-top boot with pointed toe and low heels is worn by all grades of Russian troops. It is really much lighter than it looks, yet on the march there is an appearance of clumsiness. Their marching looks more like loafing along the road than well-regulated progress.

At Tongku we found the American gunboat *Monocacy.* She is a side-wheeler, and a relic of bygone times. She has not left the Eastern waters for many years, the Navy being afraid to trust her on a voyage across the Pacific. She is more of a house-boat than a man-of-war, and will probably leave her bones in the Orient. During the bombardment of the forts she was struck by a stray shot, and then crawled up the river as far as she could go, in order to get out of range.

The country as far as Tientsin is of the same low, flat character, with sandy soil. The crops are scarce and thin. At Tientsin, which is a large city of one million inhabitants, the usual evidences of war were plentiful. There were many ruined buildings, wrecked rolling stock, dead Chinamen floating in the river, etc. The only hotel in the city, known as the Astor House, was occupied by the Russian General Staff, and had no accommodations for guests. We finally found our way out to the Sixth Cavalry camp late in the evening, and were soon comfortable among our friends. The cavalry went out early next morning with two hundred Japanese infantry and twenty-five Bengal lancers on an expedition to the southwest. They found the Boxers about six miles out. The cavalry and the lancers engaged the enemy, drove them several miles and killed about three hundred; in fact, went for them, mounted and dismounted. A large supply of flags was brought in. A Chinese force is surely an army with banners; a regiment carries enough flags for a corps.

Early next morning we started out with three troops for Peking. The destruction outside of the walled city of Tientsin, and also inside, was beyond description. The houses were simply piles of brick and mortar. Most of the dead Chinamen had already been removed for sanitary purposes, not on account of any concern for the Chinese, nor because they were looked after by relatives or friends. We reached Yangtsun, distance seventeen miles, that day. The country is still flat and sandy, but the soil is better, and fair crops are raised. Groves of trees make their appearance, and there are some slight undulations. We crossed the Peiho twice; at Yangtsun it is a yellow, muddy stream, reminding one of our Western rivers. It is about fifty yards wide, and has a good current. The crossings are on bridges of boats or junks, which were quite shaky for our army wagons. At Peitsang, which is half-way to Yangtsun, we found Company "G," Ninth Infantry, on one side, and the Japanese troops on the other, and at Yangtsun there were Japanese and French.

Setting out from Yangtsun the next day, the mountains back of Peking are dimly visible. The character of the country continues the

same. The principal crop is the *kao-ling*, which looks like our sorghum, but is much taller. They also raise millet, maize and vegetables, such as beans, egg-plant, and sweet potatoes. The soil is not yet rich enough for crops requiring substantial ground. Egg-plant and sweet potato seem to be favorites. No fruit in this part of the country. We reached Matao, a distance of thirty-seven miles, that day. At this place there are sand dunes, and consequently much worthless land. There are no roads; only trails for wagons or carts. Most of the time we were marching on top of high dikes which had been constructed to restrain the overflows of the river. These were not formerly used as roads and were not intended for that purpose. At intervals there were piles of earth to repair breaks in the dam; also graves on top; all of which interfered with our teams.

At Matao we found American, English and German troops, with an American captain in command. The next day we marched to Tung-chao, which is a walled city at the head of river navigation for junks on the Peiho. Formerly there was a canal into Peking, but it has been allowed to fall into disuse. The river has dwindled to a small stream, and at low water is not navigable at all. The villages on the road, very much like our *barrios* in the Philippines, except as to materials and method of construction, were all deserted. Dead Chinamen were seen floating in the river. Those on land were fed on by dogs and hogs. Many were undoubtedly buried under the smoldering ruins. At Tung-chao a corpse was lying in the middle of the narrow gate. All sorts of transportation passed over, until it was simply a mass crushed down into the mud. Nobody took the trouble to bother about Chinese cadavers. Police parties of coolies buried them later on. Life is held so cheap in China that but little attention is paid to dead human beings.

The destruction of the railroad was most thorough. Being so solidly constructed, it must have cost them a great deal of labor to destroy it. The rails were removed and thrown into the river. The ties were burnt or buried, and the culverts and bridges so badly damaged as to require extensive repairs. Tung-chao got off easier than the rest, but everything had been well looted. The temple near the river landing had a number of gods of heroic size and most fierce aspect. Soldiers had stuck their bayonets or sabers into them, gouged out the eyes, or otherwise defiled them. In many cases they had been reduced to wrecks and lay strewn about the buildings. Later on, the destruction was made more complete in the search for hidden treasure.

On the 23d we set out for Peking, and soon its crenelated wall loomed up in the distance. We passed the place where the first at-

tack was made and where the Fourteenth Infantry scaled the wall. The distance to the American camp was about seventeen miles, making the total from Tientsin eighty-seven miles.

The city of Peking, as enclosed by its walls, is in the form of a rectangle, oriented from north to south. The northern two-thirds is enclosed by the highest and thickest walls, and is known as the Tartar City. The lower third may be considered as a sort of annex. It is called the Chinese City. Inside the Tartar City, and surrounded by high walls, is the Imperial City. Inside of this is the Forbidden City, or Palace. This is, of course, enclosed by high walls, and is surrounded by a wide and deep moat.

The two cities were divided into sections and assigned to the troops of different nations for the purposes of police, sanitation and preservation of order. The Americans had the western half of the Chinese City and the southwest of the Tartar City. Our troops were encamped in an enclosure known as the Temple of Agriculture. These imperial grounds, surrounded by high walls, were almost unoccupied. There were a few buildings, or so-called temples, and a platform of white marble on which religious ceremonies were held. It was the duty of the Emperor to come to these grounds once a year to break soil and plant seed. In the buildings we found many conventional argricultural implements made of wickerwork or light wood, evidently used in the ceremonies. A large part of these grounds was paved with brick, but the neglect of the place was so great that weeds as high as a man on horseback were found everywhere. Beautiful bronze vases of large size, sculptured marble and other works of art were hidden away in neglect. The American troops cleaned up these places, and they then undoubtedly presented a better appearance than they had for years.

The eastern half of the Chinese City was occupied by the British forces. Their camp was in a large compound known as the Temple of Heaven. The grounds were occupied by the Bengal Lancers, the Twelfth Royal Battery, the Coolie Corps and the enormous pack trains of the British force. In the eastern part of the compound there are two beautiful circular pagodas. One is decorated in blue, yellow and gold; the other one in less brilliant colors. Both are artistic in design and in good condition, and may be considered the most attractive pieces of architecture to be found in Peking. There is also a large circular raised platform in white marble, where the Emperor worships alone; this is known to the Chinese as the center of the universe.

The Japanese occupied the whole northern portion of the Tartar City. The Russians had the southeastern corner; the Italians, French and Germans had smaller portions assigned to them.

All the nations insisted upon being represented. The buildings in the grounds occupied by troops from the continent of Europe were carefully looted, and in many cases completely gutted.

The Americans entered on the eastern side and made their way through successive gates, with the assistance of Riley's battery, to

U. S. SIGNAL OFFICE AND PAYMASTER'S OFFICE, TEMPLE OF AGRICULTURE, PEKING, 1900.

the walls of the Imperial Palace. In ten minutes more the last gate would have been blown down and the American soldier would have occupied the sacred precincts of the Forbidden City. At this stage the foreign generals called a conference, and the operations were suspended. Our troops withdrew under fire with the greatest disgust, and have ever since felt that they were deprived of their lawful prize by foreign chicanery.

The predominating feature attracting one's attention in Peking is the great number of walls.

On the 13th of September we took a ride on the top of the wall surrounding the city, starting at the south gate of the Chinese City, and making the complete circuit. The walls are easily ascended on

the ramps which are found on the inside at the main gates. The Tartar wall is from fifteen to twenty feet higher than the Chinese wall, and there is no way of passing from one to the other.

The wall is from thirty to forty feet high and from forty to fifty feet in width between the crenelated edges, which rise about five feet above the roadway. It is everywhere practicable for carriages; with a little work, principally cleaning up, it could be made one of the finest drives in the world.

The facings of the walls are made of large sun-dried brick. The space between is filled up with earth, and the top is paved with a layer of brick. At suitable intervals there are gates, generally double, with high square towers erected over them. The whole of Peking is surrounded by a moat, which was formed by taking away the earth to build the wall. The immense amount of labor to construct these walls, with an aggregate length of over fifty miles, is almost beyond imagination, especially when we consider that no machinery of any kind was employed, and the whole thing was done by hand.

The crenelated edges are formed by blocks of stone, with the usual notches for the use of firearms. This idea of having everything surrounded by a wall appears to be universal. There are no fences around grounds or property. Everything is closed up by solid walls, and the space thus surrounded is called a compound. The interior of these compounds is frequently a labyrinth of walls, so that without a guide it would be difficult to reach the residence portion. The roofs of the large public buidings and temples are made of porcelain tiles of peculiar construction. All houses belonging to the royal family are covered with yellow tiles; the use of this color for decoration is reserved to royalty.

Of the Chinese City only about one-third is occupied by buildings, and in the Tartar City more than one-half is vacant ground.

Although the population of Peking is about a million, so many live in one house that probably three times the present population could be comfortably quartered within the main walls. It seems to be a universal custom in North China to have a piece of wall in front of the door of the house, and parallel with its front. The object of these detached walls was a mystery to us for some time. Finally a resident told us that evil spirits can only travel in straight lines, and that this bulwark forced them to pass by the house thus protected. On all the doors were pasted pictures of two gods, one very fierce, looking like a war god, the other mild and gentle. The full meaning of this we never ascertained, though it was understood that they were simply household gods. There are temples and shrines in-

numerable. At intervals along the road there are small buildings with *papier-maché* gods and facilities for worship. Many of the mandarin class have their own gods on the premises, just the same as the well-to-do Filipinos have their altars and images. Indeed, it is a poor Chinaman that has not some kind of a god at hand to worship.

There is no water-supply system in Peking. Though all the houses are roofed with tile, we saw no arrangements for catching rainwater. Reliance is placed on wells, and the water is carried in buckets. The Chinaman uses very little water for personal purposes. A curious fact in this connection is that in a city of a million Chinamen there is no laundry. One could have washing done by women who had been at the French Mission; but partly because the water was dirty, or economically used, or the clothes were covered with dust while out to dry on the ground, one's raiment usually came back looking worse than when sent out.

The headquarters of the American commander were in the office building of the American Legation, which is situated on Legation Street. A large part of the Chinese City was in ruins, the destruction being greatest in the vicinity of Chien-men, in the German section. Many of the streets were merely a succession of piles of brick and mortar, the woodwork still smoldering in places. This destruction was wrought by the Boxers, who burnt up every building in which Chinese merchants sold any kind of foreign goods. The fire, of course, soon got beyond control, and the rich commercial portion of the Chinese City was almost entirely ruined. The stench from human and other carcasses, compost-heaps and green stagnant pools, and the clouds of dust consisting of dried filth, made traveling through the streets exceedingly disagreeable. Add to this the grotesque appearance of the Chinese shops still standing, with their strange lettering and gilded dragons; the massive gates and walls of the Tartar City; the numerous statues of dogs and dragons in stone or bronze, sometimes of colossal size; the many different kinds of soldiers, from the Mohammedan of India with bare legs and brilliant turban, to the heavy-booted Cossack from Siberia; and the filthy Chinaman with his pigtail and garlic breath pervading the whole, and you have a conglomerate impression never to be forgotten.

Legation Street extends from the Hai-te-men to the Chien-men, and is so called because most of the foreign legations have their compounds on this street. Only very recently it was macadamized so as to make it passable in wet weather. It is very narrow and entirely inadequate in the busy season. The lamp-posts were split and shivered by bullets; the walls are scarred in many places. The Hôtel

de Pekin was barricaded, and all the rooms of the second floor had been repeatedly perforated by projectiles. West of the American Legation all the houses were destroyed in the effort of the Boxers to burn out the Europeans. Signs of very heavy rifle and artillery fire were plentifully in evidence.

On the 24th of August we visited the Pei-tang (North Cathedral), or French Mission. In this enclosure, the walls of which are over one mile in length, two hundred and fifty persons perished during the siege. The place was defended by thirty French and ten Italian soldiers; of these twenty-three were for duty when relief came. Rations were being issued at the rate of two ounces per day, and there were only 800 pounds of food left for 3,000 people. Twenty-four hundred shells were fired at the garrison. The south end of the church is marked by thousands of bullets; the east side is badly damaged by artillery-fire. A sheet of zinc as large as an "A" target, found in the defenses, had two hundred bullet-holes in it. Four large mines were exploded by the Chinese. The crater of one was seventy feet in diameter and thirty feet deep. Nothing can give a clearer idea of the cowardly nature of the Chinese than the fact that a handful of men was able to hold this large place against a numerous enemy armed with artillery in position on commanding walls.

The American Legation suffered very little damage. The Spanish Legation also escaped. The French Legation was destroyed and the minister collapsed with fear. The British Legation, which is the largest and strongest in Peking, was shot up a good deal, but was ready at all times to render a stout resistance. The Chinese were mining and the British were counter-mining. All sorts of material of war was improvised, and a good state of defense arranged. In the dining-room of the legation a corner of the frame of the large oil portrait of Queen VICTORIA was carried away by a shell, but the painting itself not damaged in the least. By a strange coincidence, the same portrait of the Queen was damaged in an identical way at the siege of Kimberley in South Africa. At the French Mission a marble statue of the Virgin about four feet high placed on one of the interior walls escaped without the slightest injury, although the wall around it was pitted with bullet-holes. The devout looked upon this as a miracle. Bishop FAVIER proved himself a good deal of a soldier, and deserves much credit for the way the defense was managed. Several thousand Chinese Christians were huddled together in the Cathedral and adjoining buildings. Judging from their appearance, they seemed not worth saving, either spiritually or physically. We were informed that there are no converts among the rich or mandarin class,

and that the Christian influence is confined to the blind and deformed picked up out of the streets.

The architecture of the Chinese is very simple; the same form is repeated everywhere. After awhile, when the novelty has worn off, it all becomes very monotonous and tiresome. The ground plan of the buildings is in nearly every case a square or rectangle. The pagodas are circular, hexagonal or octagonal. They are experts in the use of mud, cement and stucco. The tile roofs are supported by heavy framework of timbers. Like the Filipinos, they have no lumber-

BRITISH INDIA LANCER. (ORDERLY.)

yards; only accumulations of logs, which are sawed up by hand as needed; naturally there are no saw-mills. In the Tartar City there were many millions of feet of logs on hand.

The roofs are generally in the form of two or four curved surfaces. At the end of the ridge there are always two large porcelain deer heads; at each of the four corners there is a procession of conventional figures consisting of a deer head, three to five dogs, and terminating with a woman mounted on a rooster. These pottery figures are of the same color as the roof, green, purple or yellow. The

street doors are barred from the inside and are without lock or latch. The only way to get in is to knock and wait for somebody on the inside to open.

The streets of this capital of a people numbering 400,000,000 are curiosities. The broad avenue passing from the south gate between the Temples of Heaven and Agriculture to the Chien-men and up to the Forbidden City is paved in large blocks of granite, with a gravel or dirt road on each side. There are also paved roads about the Imperial Palace. All the rest are simply natural ground. In many cases a ditch four or five feet deep is dug on each side, leaving in the center a causeway about sixteen feet wide, tolerably well drained, but too narrow. The ditches are filled with green or black water, offensive in every way. Cases of animals and even persons being drowned in the streets of the city are not uncommon. At night, driving on these causeways without street lamps is dangerous, and it is almost impossible to turn around. In dry weather clouds of foul dust pervade everything, even in winter. This is the reason why in old temples and other buildings not in use layers of several inches of dust are found. The dustiness of North China exceeds anything I have seen elsewhere. The freshly painted rigging of the *Egbert* became coated with dust in Taku Bay, ten miles from the shore.

There is a stone road, comparatively new, leading from the city to the Summer Palace. The old stone roads are very bad traveling. The large blocks are worn smooth; many of them have sunk away on account of lack of proper foundation and deficient drainage. In dry weather such roads rack wagons or carts to pieces; in wet weather animals find no secure footing. Such is the road to Liu-ko-chao, of which Marco Polo speaks in his travels of the thirteenth century. At that time, over six hundred years ago, it probably was a pretty good road. As there are no fences anywhere, there is a general tendency to form new roads across country. The Chinese peasant counteracts this in an ingenious way. Every two or three rods he digs a short trench perpendicular to the road. Rather than to be jolted or stalled, the driver will confine himself to the narrow traveled trail.

The bridges of the country are massive affairs in granite or marble. The bridge over the Hun-ho at Liu-ko-chao is a broad and beautiful structure in white marble. It aroused the admiration of Marco Polo, and is still in good condition. Many of the trails and narrow roads have, through centuries of use, been worn deep into the soil, so that one is likely to be traveling in a small cañon with no way of getting out except at the ends. This was especially noticeable in the country north and west of Peking. Good running water is scarce, for

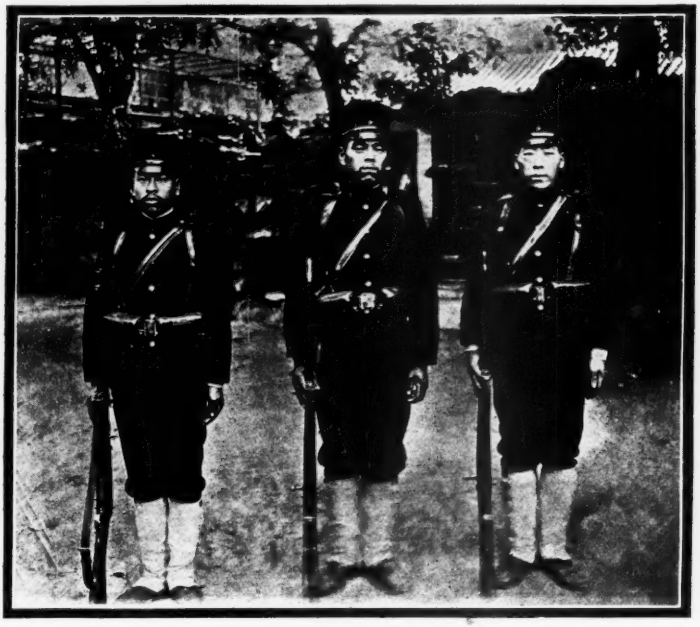
the dense population pollutes all the water with its filthy habits. Water from wells is raised by buckets, suction or force pumps being unknown.

The people are very saving in the use of fuel. There are no stoves and no fire-places. Firewood is very scarce. Reeds and the roots of plants are used for fuel. In the cold winter weather the Chinaman puts on additional layers of clothes wadded with cotton or lined with skins of animals. Generally he has no bed, but sleeps on the *kong*. This is a platform raised about two feet above the floor and covered with flat tiles. A light fire is built under it. Every particle of heat is thus utilized. A few mats spread on the *kong*, a pillow and a cotton cover complete the sleeping arrangements.

The cooking of the Chinese is peculiar. They are great eaters, and may be seen devouring food at all hours of the day. They are especially fond of fritters and all things cooked in grease. Peanuts, chestnuts, sweet potatoes and egg-plant are favorite articles of diet. The marketing is done in the usual Oriental way. No food supplies are kept on hand in the household. At meal-times the servant buys for a few *cash* just the amount necessary for that meal and cooks it over a diminutive fire. The poor classes feed largely on rice and millet, or the seeds of the *kao-ling*. The fuel used in cooking is coal. About ten miles west of Peking there are rich mines of anthracite coal of excellent quality. The coal-fields of China are by far the greatest in the world. Owing to primitive methods of mining and transportation, coal is quite expensive. It is all brought to the city on the backs of camels. Immense trains of these large, ugly, shaggy, double-humped beasts bring in their four hundred pounds each. As they subsist on the coarsest food and labor is very cheap, this method is probably as good as any from a financial point of view. Several offers to build railroads to the coal mines have been made by foreign capitalists. The Chinese Government always rejects them, because it would throw so many camels out of employment.

The Chinese ponies are a very hardy class of animals, and comfortable for saddle purposes. Their antipathy to white men, and especially to soldiers, was curious to behold. Our marines seized a lot of them. There seems to be a sort of infatuation which makes a sailor or a marine crazy to ride a horse as soon as he reaches the shore. Our men had horses to give away, and nearly all the officers rode. When we stop to think that *carruajes, coches, calesas, quilezes* and *carromatas* are unknown in this part of China, we are apt to forgive this acquisitiveness on their part. The Peking cart, which is the only Chinese vehicle on wheels that I saw, is an instrument of tor-

ture. It is stoutly constructed of hard wood. The tire has cogs to prevent slipping. There are no springs of any kind; the top, in shape of a box, being attached to the axle and shafts. There are no seats; simply a few cushions thrown in the bottom. Imagine traveling a hundred miles with your feet doubled under you tailor fashion and riding on the axle. People who made the journey from Tientsin in such a cart tell me they were dead to the world for a week. A much pleasanter mode of conveyance is in a chair carried by coolies. A



JAPANESE INFANTRY.

large wheelbarrow with the wheel in the middle is also a very common means of transport. One man steadies it at the handles and others pull on it with ropes. But by far the most frequently used transport is by means of coolies and the *pinga*. The human machine is so cheap, and it takes so little fuel to run it, that this method will not be replaced for a long time, if ever.

Coming back to the question of fuel and heating, the anthracite coal is so hard that it is difficult to keep the fire going. With a small fire such as would be used by the Chinese, it is almost impossible.

This is overcome by pulverizing the coal and then making it up into balls the size of a walnut. For heating purposes they also use a small stove, which is simply an unglazed earthenware four-gallon jar with a small hole near the bottom for draft. All the gases, of course, escape into the room, and sometimes the occupants fail to wake up. This, however, is a matter of small moment, and the stove is not blamed for it.

A great many different kinds of money were in circulation. The silver dollars of Japan, Hongkong, the Straits Settlements, Mexico, the United States and the Chinese Provinces were all valued differently. The bank paid what it pleased for gold; Chinese merchants would not take it at all. At Tong-ku I tried to pay a boy for carrying my valises with a piece of silver. He refused it, but was satisfied with two *cash*, of which it takes eight hundred to make a dollar. He had evidently never seen anything but brass money in his life.

The *cash* are strung on cords forty-nine to a bunch, the fiftieth one being taken out as *cumshaw* to pay the teller. Our quartermaster had this stuff stacked up and went around with a cart to pay off. Most of the coolies had to be paid daily. In the evening we could see them trudging home with a load of *cash* on their shoulders. They thus had plenty of money on a salary of twenty to thirty cents per day, which was double the usual amount. While the poor Chinese were daily digging and raking over the ruins for stray *cash*, our soldiers left them lying about in strings as not worth picking up.

The principal markets are on Chien-men Street in the Chinese, and on Hai-te-men Street, or, as the Germans call it, Ketteler Strasse, in the Tartar City. On bright days these streets are a sight to behold. For three miles north of Legation Street there are immense throngs. Besides the goods for sale in the stores, thousands of peddlers and hucksters display their wares in the open air on mats. It is, of course, impossible to enumerate all the kinds of garments, silks, embroideries, furs, loot and junk offered for sale. At this particular time a large part of it was stolen goods, damaged articles recovered from the ruins, or the proceeds of looting expeditions sent out by the foreign armies.

The universal drink of the country, as you know, is tea. It is served hot, without sugar or milk, and is offered by everybody, even by the peasants along the roadside. Our soldiers did not esteem the beverage very highly.

The fruits of Peking are few in variety. Crab-apples are sold on strings like beads. The larger apples are mealy and not fit to eat. The pears are of two kinds: the hard watery variety, without flavor;

and the round Peking pear, which is famous, probably by contrast, for it does not compare with our California or Delaware pears. The grapes are excellent. The characteristic fruit of the country, however, is the large flat yellow persimmon, of which the Chinese seem to be very fond.

Farming is primitive and laborious. They do pretty fair plowing, are skillful in the use of manures and in irrigation, and keep their fields scrupulously clean. No agricultural machinery was seen; also no wind-mills. Their principal deficiency in farming is the lack of variety. The peasant is content to produce the same thing for centuries without ever thinking of change or improvement. The *kaoling*, already referred to, grows to a height of fifteen feet. A command placed in a field of it is as completely out of sight as it would be in a dense forest. The seed is planted close together, thus producing long slender stems. This would seem to be undesirable as far as the quantity and the quality of the grain are concerned. But the latter is not the only product to be considered. The long slender stems are used for building material, to construct the sides and roofs of houses; and split into strips it makes the coarse mats so commonly seen in China.

There are many places of interest to visit in and near Peking. Nobody was more eager to have a look at the interior of formerly forbidden buildings than the Europeans and Americans of Peking, some of whom have been resident there for many years. Sir ROBERT HART, an Englishman who has charge of the Chinese imperial customs, came in 1860, and has been back to London only once.

Beside the great walls and the beautiful pagodas of the Temple of Heaven, we visited all the legations. The Temple of Ancestors is full of *cloisonnée* and rich pottery. It was used by the French as headquarters until they moved to the Altar of the Silkworm. At the White Ming Pagoda, on the border of the lake and north of the Forbidden City, there is a large bronze statue of the tutelary deity of the city. It is a most forbidding-looking object, with the head of a dragon and eight pairs of arms and legs, and trampling human victims under foot. The marble bridge across a narrow part of the lake and the building at its eastern extremity are worth looking at.

Due north of the center of the Palace there is an elevation of several hundred feet, known as Coal Hill. According to tradition, one of the powerful emperors collected here a vast pile of coal to serve as a reserve supply in case of a siege. There may be some foundation for this in fact, as it would be a perfectly natural proceeding; but it must be largely a myth. There certainly is not a trace of coal

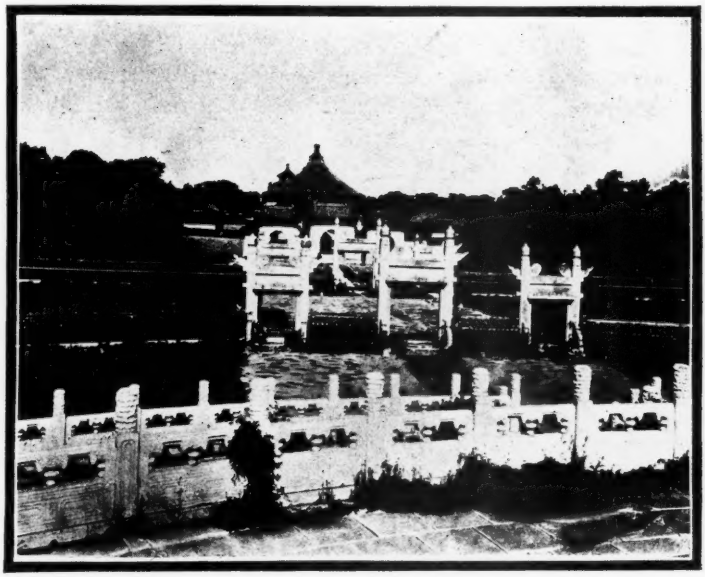
there now. From the pagoda on the summit there is a fine view not only of the Forbidden City, but also of all the surrounding country. As you look down on the yellow roofs of the sacred precincts, where no Christian had ever entered, you appreciate the desire of the traveler, reporter and photographer to penetrate into the interior.

The southern gate was held by the Americans, the other three by the Japanese. Nobody was allowed to enter without a pass from the American or Japanese general. It was my good fortune to pass through twice and to inspect nearly all the buildings and works of art. Foreign officers of high rank and other influential people went through in detachments, under escort of an officer, American or Japanese. Most of them had large pockets, and it was difficult to prevent objects of small size from being "pinched"; in fact, on my second trip none were to be seen; even the porcelain tags from the ashes of the imperial ancestors had been removed. Those who had borne for years the stigma of not being good enough to enter these sacred halls now had little compunction in carrying off the most sacred articles, to be preserved as souvenirs. The Forbidden City is very disappointing. We expected better things at the seat of empire. There are some fine large vases in bronze, and colossal statues of dogs, cranes, turtles and dragons. The buildings are dilapidated, the courts overgrown with weeds, the tapestries decayed, the carpets worm-eaten and ragged. All these things are relics of the glory of the ancients; the moderns have not even kept clean the works of art left to them, nor prevented the palaces and temples from becoming foul pigeon-roosts.

The Empress Dowager's Palace on the lake shore, in the southwest corner of the Imperial City, was crammed with valuable articles. Unequaled ebony carvings in large pieces, ivory and marble work, smaller *objets de vertu* in agate, jade and malachite, rich tapestries, gowns and furs, all in profusion. Yet, with all these really handsome furnishings, they went wild over cheap bronze or gilt clocks from France and Germany; gaudy chandeliers with red and green pendants disfigured the rooms. European playthings were found everywhere. They seemed to be very fond of mechanical toys and the phonograph. Everybody who could afford it had a music-box. The Emperor's Palace near by presented the same picture to a smaller extent. At one time boating on the lake was an amusement for the royal inmates. In these latter times the lake has shallowed a good deal and is overgrown with a jungle of lotus, so that boating is impossible. A few bathing and washing places are kept clear of weeds. Another royal plaything to drive away *ennui* was a railroad track and cars. The road was several miles in length and ran along the lake.

There were no engines. When the Peking Lake Shore Limited came along, decorated in yellow furnishings, it was drawn by coolies manning imperial yellow ropes.

Near the north wall of the Tartar City there is a large compound, half a mile square, with a mass of buildings known as the Lama Temple. It formerly was inhabited by 2,000 monks, who, in addition to the usual lazy and worthless character of such beings, were extremely rapacious and insolent to foreigners, who paid good money to get into



VIEW IN TEMPLE OF HEAVEN GROUNDS, PEKING, 1900 (LOOKING NORTH).

their rotten presence, and usually more to get out. The brutes are meek enough now; everybody cuffs them to get even. The main temple has a figure of BUDDHA eighty feet high, and the place was full of gilt and bronze gods. I am informed that it has been looted and all the gods except the eighty-footer carried off.

The Chinese barracks, north of the Anting plain, which was a drill-ground for the regular Chinese troops, and about one mile from the city, were occupied by the Japanese. As the buildings are new, the Japs were as comfortable as they would have been in their own barracks.

By far the best kept and most beautiful place is the Emperor's Summer Palace, seven miles northwest of Peking. This group of buildings is situated on the banks of a considerable lake, partly artificial, on which there are five steam launches. The figure of a side-wheel steamboat in white marble rests at the edge of the lake and makes an ideal band-stand and a place of entertainment. The secretary of the American Legation, Mr. SQUIRES, gave a picnic and a luncheon to a large party there. Music and the most approved beverages and viands were not lacking. All these palaces were in the possession of the Russians, who beat the Japanese in a race for this loot. They had placed seals over various apartments, but I fear that in spite of this, His Imperial Chinese Majesty will have to make a new collection of *bric-à-brac* when he gets back.

The Ming tombs, about a day's journey to the northwest, are said to be well worth seeing. A projected trip to that place and to the great wall of China was cut off because at that time the Americans were discouraging expeditions.

At a conference of ministers and commanding generals, on August 25th, the question of a formal entry into the Forbidden City was brought up. After some discussion, in which the contention was made that the military success of the expedition was not complete, that the Chinese would say that we could go so far but no farther, and that we were unable to penetrate the Holy of Holies through direct interposition of the gods, it was decided by a vote of six to two, all the Europeans voting in the affirmative, to make a formal entry into and passage through the Forbidden City. It is true that the pretext seemed a small one; still it must be remembered that the Chinese are a credulous and superstitious people, and as long as there was no ocular demonstration of the complete fall of the Imperial City, they would consider themselves as having "saved their faces." The question of the relative strength of the detachments, and especially as to who should head the procession, almost raised a row in the conference. Precedence was claimed for the Japanese because they had by far the largest force and had done most of the work. The Russians asked for first place because they were first in the city. Neither General LINIEVITCH nor General FUKUSHIMA would give way, and neither was willing to submit it to a vote. General CHAFFEE took pains to inform the wily Muscovite that the reason he was first at the gate was because he had violated an explicit agreement not to start till 8 A. M., by advancing secretly at 10 o'clock the night before. As it was, the Russians were stalled at the gate and unable to go farther until the Americans

pushed past them. General LINIEVITCH finally proposed that the Russian and Japanese troops go in side by side, which of course was not practicable. General FUKUSHIMA then said he would leave the final decision to his chief, Baron Lieutenant-General YAMAGUCHI. The latter sent word next day that the Russians might lead. It was agreed to make the formal entry at 8 A. M. of Tuesday, August 28th. No mounted troops to take part; the generals and their staffs to ride horses, but no others. Troops to enter at the south gate, march through to the north gate, and be dismissed. The following order of entry and the number of soldiers corresponding to each was fixed as follows: Russians, 800; Japanese, 800; English, 400; Americans, 400; French, 400; Germans, 250; Austrians, 60; Italians, 60. The French and German contingents were entirely out of proportion to the degree of their participation in the campaign, the French being feebly and the Germans not at all represented. General FREY claimed he now had 8,000 troops in China. The Austrians and the Italians sent all they had. The chiefs of the staff met next morning and completed the arrangements.

On the day fixed, the procession started at the appointed hour. The Russians took charge of the whole thing. General LINIEVITCH and staff rode around and looked at the various bodies of troops, except the British, and received their salutes. The Russians had two bands of music; the conduct, appearance and marching of their men were good. The Japanese moved off promptly in their turn. They presented a remarkably uniform, neat and compact appearance, and marched with precision, using a sort of modified goose-step, similar to the German parade-step, which shook their fat cheeks. Full swing of the arm was permitted. The bagpipe corps of the Gourkas, dressed in turban and plaids, then struck up with their weird music, and the procession of British troops started; all of their regiments were represented. Next followed the Americans, headed by General CHAFFEE and his staff.

The picture printed in *Collier's Weekly* was taken at this time, while waiting our turn. As our bands could not be induced to march up from Tientsin, we were without music. In one of the court-yards near the center of the Palace, the Russians formed line and cheered the other troops as they passed by, the bands playing appropriate airs. The Germans marched in their parade-step, which is like our double-step, but gaining ground to the front. They were a sturdy-looking outfit, and impressed one at once as good troops. The French presented a sorry appearance; the Austrians and the Italians were creditable. The spectators were limited to a few photographers and

reporters, so that the honor of heading the procession was rather an empty one, after all.

After the parade, the staff officers visited the buildings and looked at the gods and other curiosities. The eunuchs did not seem a bit pleased when they had to open up. When we came to the harem, the head eunuch positively refused to open the door, and made signs across the back of his neck, indicating that he would lose his head. It occurred to me that turned over to some of our inducers, he might have quickly changed his mind.

The domestic animals of North China are about the same as ours. The sheep is much more common than with us, the skin being highly esteemed for clothing in winter and the flesh for food at all seasons.

GENERAL CHAFFEE'S HEADQUARTERS, TEMPLE OF AGRICULTURE, PEKING, 1900.

The large flat-tailed variety seems to be the favorite. The camels of Mongolia come down in the fall of the year with furs and other produce of the country, and take back with them tea, cotton goods and silks in the spring. The dog is very plentiful and is the scavenger of the country. There is a peculiar breed of small dogs with high foreheads and large eyes. They are only seen in parlors as pets.

All the bronze and stone dogs, sometimes weighing tons, seemed to be fashioned after this breed. The rest of the canine population are curs of the worst kind. We saw no buzzards or other birds of that species in North China. The reason of this probably lies in the fact that there is nothing for them to eat. No domestic animals are al-

lowed to die a natural death; if one should do so accidentally, he would be utilized by the Chinamen anyway. All wild animals have been crowded out of this densely populated section, but deer, tigers, bears and wolves are found in the mountains of Manchuria and Mongolia. For many years the only tax paid by Korea as a dependency of China was a certain number of tiger skins annually.

Along the road from Tientsin to Peking there was a good deal of indiscriminate shooting, especially in the vicinity of the Russians, and from junks in the river. It was probably indulged in to some extent by soldiers of all nations, shooting at dogs, chickens, and so forth, and was a source of annoyance for several weeks; one of our lieutenants was hit in the hand by a stray bullet.

The country around Peking, as viewed from prominent points in the city, is a plain. The foot-hills to the west are about ten miles distant, and beyond them successive ridges of high mountains are seen to the north and west. To the east, south and southwest the great plain extends indefinitely. The Imperial Hunting Park, southwest of the city, is about five miles square and enclosed in stone walls. Outside the walls of the city, especially to the west and north, there are large suburbs with many thousand inhabitants. At various points pagodas and temples are to be seen, and occasional groves of trees in parks and cemeteries. A large part is laid out in gardens to supply the vegetables and other food-stuffs for the city. Not enough is produced, however, to feed the dense population, and reliance is placed on the annual tribute of two million bags of rice floated up on the canals from provinces farther south.

On the 25th of August a private of the Fourteenth Infantry brought in an immense double-humped camel loaded with vegetables; it created a sensation in camp. This was a new kind of transportation to the American soldier, and he did not know exactly how to handle him. Later on, our quartermaster had large trains of camels bringing in vegetables from the country and coal from the hills.

On the 26th of August two native Indian soldiers were killed by an American patrol, for looting in the American section. They would not stop when ordered to halt, and, after crossing their own lines, opened fire. Two shots were fired at them in return and two Sikhs died. A court-martial fully exonerated our men. The affair increased the reputation of our Army as being composed of good shots.

Many expeditions were organized for the purpose of scouting the country and locating the Boxers. The Sixth Cavalry made two expeditions to the Hunting Park and killed about forty. Another expedition of the Sixth Cavalry went to the northeast, with the object of

liberating some Chinese Christians. They were guided by an American missionary, who had to be restrained. His sole object seemed to be to impress the natives with the power of the Christian God. The Christians were found to be in no danger and declined to be rescued.

The British sent out many expeditions with carts and pack trains for the purpose of bringing in loot. When no more places were available in the city, they extended their operations to the country, and soon had a warehouse as big as a ship filled ten feet deep with furs, garments and silks. The French were inveterate looters, and sent out expeditions daily. The Russians had possession of many of the choice places in the city. Their operations were not much in evidence, but they were effective nevertheless. The Japanese captured 50,000,000 *taels* of silver. A horse sold by Lieutenant RHODES, Sixth Cavalry, to the Japanese chief of staff, was paid for in original packages of silver from the treasury. The Americans, especially the marines, also acquired a few articles before they were stopped. All the American loot was ordered to be turned in, and then General CHAFFEE did not know what to do with it. He finally ordered it to be sold for the benefit of the poor of the city. Later in the season considerable bodies of troops were sent out, ostensibly to drive away Boxers, but the real object was to get in touch with more loot. A large expedition consisting of two columns, one from Tientsin and the other from Peking, was sent to Pao Ting-fu. All the silver had been removed to the mountains, which caused as much disappointment to Catholics and Protestants from France and Germany as it did to Mohammedans and Buddhists from India.

The Chinese silver is cast in small ingots, varying in value from five to fifty dollars. They are generally in the shape of a small short boat, and are called "shoes." These fit into each other, and are placed in bamboo poles, and are thus transported.

The head clerk of Peking's only hotel has become a millionaire, verifying the old saying that it is an ill wind that blows nobody good. He and his wife, who is a California woman and a good rifle-shot, commenced their looting during the siege. Houses in rifle range abandoned by rich Chinese were visited and pillaged. When the troops entered, this M. CHAMONT took advantage of the confusion to bring in all the silver he could. The safes at his office were overflowing, and the precious little "shoes" were lying about like so much old iron. Later on, he commanded regular robbing expeditions. One of our patrols recognized him at his work in one of the American sections. He escaped, and being a French subject, got off free. He made most of his money, however, by going among the soldiers and buying the

silver. As the "shoes" did not circulate as money, he got them for one-fifth to one-half of their value from soldiers, who were tired of lugging the stuff around in their haversacks. By deposit in that philanthropic institution, the Hongkong and Shanghai Bank, the operation was completed.

Upon reliable information that a number of Boxers were assembled in the hills west of Peking, an expedition, under command of General WILSON, consisting of British and American troops, started on the 16th of September. The British had a conglomerate force. They seem to have the habit of working by detachments instead of tactical units. There may be some reason for deviating from sound principles in this respect, but I could not discover it. The first day's march was to Liu-ko-chao. A night march brought us at daylight to the position. A flanking column consisting of QUINTON's battalion, Fourteenth Infantry, and some Hindoos climbed Mt. Bruce, and thus turned the enemy's position at the Pa-ta-chao temples. It was a stiff climb, in which the Americans beat the hill-climbers of India. Upon arrival at the summit, firing commenced. One company finally charged the town and took it, while a small detachment went two miles farther to close the line of retreat. About twenty Chinamen were killed. Apparently there were no wounded. When the other troops came in, we had to give them quarters.

The place was immediately looted by the Sikhs, and the property was turned over to an officer, who entered it on a list. The British handled such matters better than anybody else—evidently the result of long experience in India. After a warehouse full of stuff had been collected, an estimate was made of its value. This sum was then divided up *pro rata* on a fixed scale among the officers and men, and the amount placed to their credit in a book. The goods were then auctioned off to the highest bidder, care being taken by bidding in to secure approximately the estimated value. The outside "suckers," among them the Americans, paid cash, whereas the Britishers bought against their credit. Many articles brought more than they were worth, and all together it was the most scientific system of looting observed in China. The richness of the displays at these sales I leave to your imagination. Some articles, such as jade, were valued highly by the Chinese for religious reasons, and because they were the fashion. The manufacture of some others, such as genuine red lacquer and the *sang de boeuf* vases, has become a lost art. The soldiers often knew nothing of the value of the articles they were bringing in. On one hand, a rock crystal statuette would be taken for glass, and on the other, gaudy jewelry was prized highly. The Chinese attach great

value to age. They all seems to be connoisseurs in pottery, and can tell you the age of a piece of china instantly. Some of it, manufactured during the reign of Dao-Ching, is over one thousand years old.

There was ample evidence that the temples had been used as headquarters for Boxers. Two machine guns were placed so as to sweep the entrance to the valley. We also captured a quantity of powder, 10,000 cartridges and a lot of *jingals*. The strength of the enemy had been greatly exaggerated. The English and American legation people used to rent these temples during the summer and spend their vacations in the hills. The building leased by the British had been destroyed by the Boxers. This is a fine location, with a view of the Summer Palace and Peking. Resting here in the fresh air from the mountains, the reclining mandarin, surrounded by a goodly company of gods, and "hitting" his pipe, was lulled to sleep by the gentle tink-

IN FRONT OF THE TEMPLE OF AGRICULTURE, PEKING, 1900;
CAMEL TRAIN BRINGING IN COAL.

ling of the bells on the great white pagoda, swayed by the breezes of summer. A spring of fresh water gushed out from under a rock at the foot of the mountain, and there were fish-ponds and baths. With suitable company, supplies and cooks, I can imagine a very pleasant two months at such a place. General WILSON protected the beautiful pagoda, but when the American troops left, the gods and this landmark were laid low. The arsenal at San-kia-tien was also burnt down.

Several words in the English language have been adopted by all the Europeans. Everybody refers to property taken from the Chinese as "loot"; the German calls the rebels *"Die Boxer,"* and the Frenchman refers to them as *"Les Boxeurs."* When the officers of the different armies are lined up at the bar of the Tientsin International Club, they all say, "How!"

I shall not go into the details of the differences in the customs of the Chinese civilization from ours. Genial old General VON HOEPF-

NER'S favorite remark used to be that in this cussed country everything is upside down. In Germany the apples were round and the pears long, but here the pears are round and the apples long; the Chinaman pulls a saw instead of pushing it, etc. It seems certain that the Chinese civilization has been developed from remote ages on entirely separate lines, with practically no influence from outside sources. They claim to have tried all our systems while Europe was still peopled by savages, and to have given them up, finally arriving at their present perfect plan of human life. This is the reason that we have made no impression on their civilization, in spite of missionaries and of Chinese students sent to our schools. A few novelties, such as the phonograph or the electric light, may attract their attention, but do not disturb the general apathy of the people. Probably only a small portion of the peasantry know that the "foreign devils" have been in Peking. When the troops leave, an imperial decree will be issued, stating that with the aid of the gods the "foreign devils" who tried to enter Peking have been driven back to their ships, after losing many lives and paying heavy indemnities for their temerity. So little is truth regarded, that those who have lost fathers, brothers or husbands will not dare to make an inquiry questioning the imperial decree. I am told that among the people there is not even a tradition left of the presence of the Allies in 1860, only forty years ago.

The flags of the nations were used to protect the property of persons living in their district. Flags could be seen on buildings, carts, camels, and even coolies, who had a miniature flag pinned to their gowns. The Americans came without flags; however, the Chinese made pretty good imitations, although they were generally short of stars. The French robbed our camels several times in spite of the flag. The robbing of Chinese grew to such an extent that, at the instance of Sir ROBERT HART, a conference of generals was called to devise means of stopping it. Prince CHING sent word that there still were about one million Chinese in Peking. He asked for permission for his people to bring in food, and for the guards to protect merchants and vendors. General GASELEE stated that he saw Chinese doing business in every quarter of the city except the Russian, where there were only dogs. This remark, when translated to him, did not disturb General LINIEVITCH in the least. He thanked General GASELEE for the information, and said that the matter would be remedied. The English and the Russians do not love each other, and the former do not always succeed well in hiding their animosity. The French and Germans are more polite to each other, though when I heard General VON HOEPFNER speaking to the French chief of staff and the latter

reply in German, I did not think they would need any signs of "lest we forget" for some time. Suitable orders were issued for the protection of the Chinese dealers.

On September 11th there were over 30,000 troops in Peking. A still greater number was on the line of communications, at Tientsin, and *en route*. It was the opinion of the conference, upon inquiry by General CHAFFEE, that a garrison of 10,000 would be sufficient for Peking. At these conferences the French seemed to be a sort of an annex to the Russians, though the latter went through the form of consulting them.

The impression I received of the foreigners, after associating with them officially and socially, is that they are not to be trusted, except the English.

American generosity and straightforwardness, coupled with lack of experience in international matters, cannot hold their own against European cupidity and duplicity. Beside the two cases of deceiving the American commander already mentioned, there was a third by the Russian commander. At a conference on the 25th of September, General WILSON asked what effect the withdrawal of the Russian troops would have on the repair of the railroad from Yangtsun to Peking. General LINIEVITCH replied that work would continue; that there were difficulties which rendered accurate prediction of the date of completion impossible, but that material was coming from Shanghai and Vladivostok, and that progress would be rapid. He also said that the telegraph line would remain in operation, and at the disposal of the generals. In less than a week it was announced that work on the road was abandoned. The telegraph line got out of order, and was never repaired. A fourth case of deception was by the French. Though they had only a squad with a flag present in the attack on Peking, they claimed allotment of part of the city to them. General CHAFFEE gave up a large section to them. Then, in order to straighten out the line, as they claimed, they begged for one hundred yards more. They got that, too, our general and minister never questioning their motive. It turned out that the only reason they wanted that extra piece was because it contained the mint, out of which our Gallic friends extracted 400,000 *taels* of silver in a few hours.

The burial customs of the armies differed greatly. The British and Japanese burnt their corpses; the Germans selected a cemetery near the Hai-te-men; the French preferred their consecrated ground at the Pei-tang; and the Americans eventually ship their bodies halfway around the world.

As the time for the arrival of Field Marshal Count VON WALDERSEE approached, the Germans became much agitated. General VON HOEPFNER brought the matter up in conference several times; the other generals placed their troops at his disposal. A cavalry squadron was to meet the Count outside of Peking. Both sides of the way from the Hai-te-men to the Emperor's Winter Palace were to be lined with

SOUTHERN ENTRANCE TO THE HALL OF HARMONY.
FORBIDDEN CITY, PEKING, 1900.

troops in skirmish order. The General desired to make a trial deployment the day before, but I guaranteed that our troops would be in position at the appointed hour, and we were spared the extra work. On the 17th of October, at 11:30 A. M., the boom of cannon announced the arrival of His Highness; the procession passed off very well. This was a great opportunity to make notes on all the different kinds of uniforms. At the Winter Palace the selected companies constituting

the guard of honor executed a march past in columns of fours. The march of the Americans at "port arms" without any ostentation was finely done, and made a good impression. The English and Japanese also did well. The French were a little better than usual; the Italians were disgraceful. The Germans were all picked men, accurately sized, and executed an unusually high parade-step, their knees going up as high as their elbows and the flat of their hobnailed boots coming down on the pavement with a whack. The Field Marshal looked well in his uniform of the Prussian Uhlans. Outside of Peking he left his carriage, which, by the way, was drawn by fine mules branded "U. S."

The German supply departments have not been as efficient as was expected. The fact that they are not accustomed to trans-marine expeditions, and the great distance, partly accounted for the deficiency. German officers desired to purchase commissary stores, cigars, clothing, horses—in fact, anything. French officers were also after cigars and cigarettes *de Manille*. Colonel ALEXANDER and other British officers, having heard that the American troops were about to be withdrawn, made inquiry whether some horses would not be sold instead of shipping them back to America. Whereat I told them that the American Government did not sell horses except after condemnation, and that the troops from China would go to the Philippines, and take their horses along. The impression seemed to be abroad that the Americans would sell anything—a purely commercial people, you know; this is the reward for the kindness of our Government in permitting the more destitute to purchase clothing, cigars, etc. They supposed that Uncle SAM was making a profit on these things, and could not understand why they were so remarkably cheap. Such little incidents throw a side-light on the character of the Europeans, who very often seem incapable of conceiving of truthfulness and unselfishness in others.

On the 3d of October we had a review of the American horse, foot, artillery and marines. The troops made a very fine appearance, particularly the battery. What the Europeans respect most in us is our shooting qualities. Our rifles and ammunition are as good as any, and most of our men are better shots. But our proficiency has sadly fallen off—a fact that nobody but ourselves is fully aware of. This defect will rapidly be remedied in our newly reorganized forces, for nearly all our officers realize the situation.

The American administration of civil affairs in the Chinese Quarter was a source of great satisfaction all around. The place became

a refuge for the Chinese, and was crowded to overflowing. The German Quarter just across the street was deserted.

When the Fourteenth Infantry left on October 21st for Manila, the artillery and cavalry accompanied them beyond the city limits to the place where the first attack was made. The cavalry presented arms and the battery fired a salute. General CHAFFEE called up the officers and made an address. Then there were cheers for General CHAFFEE and Colonel DAGGETT, and the cavalry and the battery. Some German staff officers witnessed the affair, and when they heard the cheers and found that there was nothing said about *"Hoch der Kaiser,"* they went off in a huff. I suppose they reported to their Field Marshal that the *Americans are very impolite.*

Long residence in China often has a curious effect on white men. They become great admirers of the ancient philosophy. When they get far enough along to know the pottery—perhaps to have made a small collection—and can read the signs on the shops and the tablets in the temples, they will probably remain in China the rest of their lives. They become satisfied that the Chinese plan gets more out of life than any other; that the feverish activity and struggle for gold of the Europeans do not increase the happiness of the individual or contribute to the welfare of the people. We thus find white men who are decidedly pro-Chinese. Some of them adopt the Chinese dress and wear pig-tails.

The meetings of the Chinese Government councils always take place after midnight. The hour for the Tsung-li Yamen was 2 o'clock in the morning. Of course, when in China, our legation people had to do business at the time appointed by the Chinese; no amount of profanity would remedy the matter. The talk of the Chinese officials, as you know, is endless. With them procrastination is a fine art. As you go lower down in the scale it is the same; everybody talks. In the laboring class all aspire to be No. 1. When there is special work to be done, they all get together to talk it over; it is their way of killing time. Chinese labor is as expensive as American, for five men will not do one man's work.

The Russian has the Oriental method. He will talk for hours about trifles, and then bring up the important subject. Perhaps some of you will think that the lecturer is tarred with the same stick, for we come last to a few remarks on the armament, equipment, instruction and *morale* of officers and men of the foreign armies. All the troops had excellent small arms of practically equal caliber, power and efficiency. The Germans and the French had long bayonets, the Americans, English and Japanese short ones. Our battery of light

artillery was the best. The foreign batteries were not of the latest model. The English Twelfth Royal Battery was a very heavily equipped affair, but solid and efficient. Most of the other guns were of small caliber. When the large German reinforcements arrived, their batteries brought the largest model field guns, caliber 77 mm. It is a beautifully constructed gun, with fine sights.

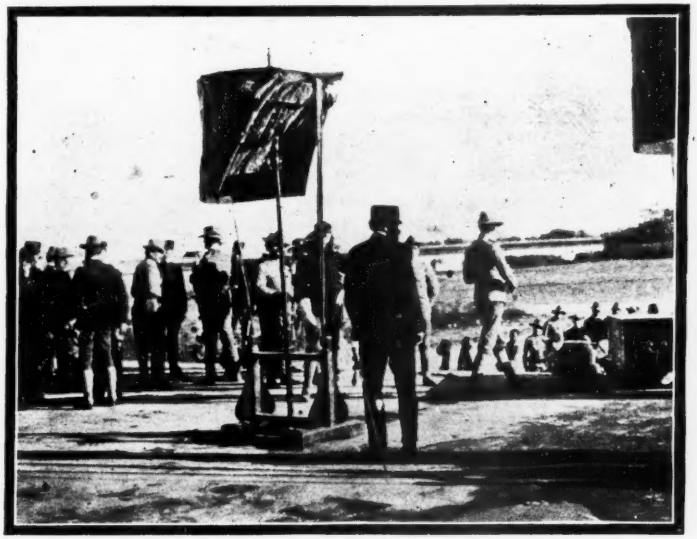
Among the many dead animals along the road from Tientsin to Peking we saw no American horses or mules. This speaks well for the superior quality of our stock, and still better for the care we take of them.

The Russian horses were an undersized, shaggy lot; they are said, however, to have great endurance in severe climates on poor food, covering long distances and carrying good weights. The American horses were by far the largest there. Our saddle is the best; an opinion held by the British officers, as well as our own. The new German saddle and horse equipments are also very good. I do not go into the details of these things, for lack of time. The Indian Lancers had much lighter, but very active horses; in fact, they were beautifully mounted. When a native enlists in one of these regiments, he has to contribute three hundred rupees to the *chundee,* or horse fund; when his time expires, he gets his horse or the money value thereof back. The Japanese horses are still smaller; I do not believe their cavalry amounts to much. It is to be regreted that there was no opportunity to compare the American and British cavalry in a long raiding expedition. In horses, equipment and pack transportation we distance them all, and have the only cavalry suited to long and rapid expeditions in all kinds of weather, especially winter. The American transportation was by far the best there, only, as usual, we did not have enough at first. Although there were no roads, we had no trouble with our wagons. Our train of twenty-eight teams carried as much as all the pack transportation of the British forces. For a long time the only draft animals the Germans had at Tientsin were their own soldiers. Everything on four feet was of course seized to supply the deficiency.

For transportation of the sick, the Indian troops had *dhoolies,* or hammocks swung on large bamboo poles. The patient, protected by green curtains from heat and dust, travels very comfortably. The *dhanjibhoys,* or ambulance carts, also seem to be clumsy affairs, although said to be quite convenient. The British also employed a coolie corps of a thousand men, and upon arrival in Peking promptly organized a camel corps which rendered good service, the troops being accustomed to that kind of transportation. The baggage allowance

of officers and men on both the summer and winter scales are accurately fixed by regulations.

A peculiar feature of the Russian transportation was a kitchen on wheels. An elliptical iron box, axes of about four feet by three feet, served as a huge kettle for the soup of the men. The ration of the Russians is very simple, and soup forms a large part of it. The fire under the kettle is kept burning on the march, at the end of which a cup of hot soup is served to each man at once.



PRESENTATION OF UMBRELLA TO GENERAL CHAFFEE BY CHINESE OF AMERICAN SECTION, CHINESE CITY, PEKING.

The French transportation was such as could be picked up in the country.

Our subsistence department did excellent work, and our ration both in quality and in quantity was far ahead of all the others. Our large and varied supply of sales stores was the envy of all the foreign officers, who particularly admired our fruits and cigars. Our clothing was much sought after by the foreign officers, especially gauntlets, fur caps, gloves and blanket-lined overcoats. All our clothing was declared to be excellent. A few days before I left, the Italians, having heard that we were sending back to Manila our excess of supplies, begged us to sell them 100 pairs of shoes, saying that their men

were ordered on an expedition, but that many of them were practically barefooted.

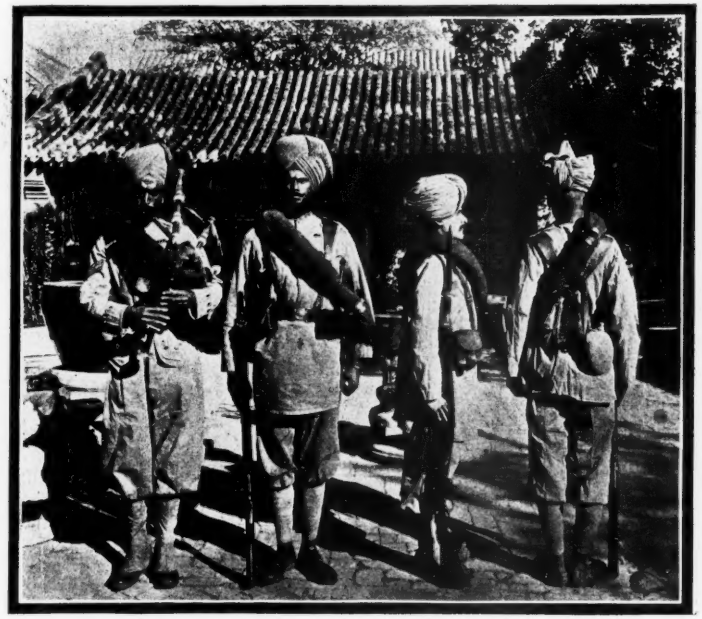
The strength of the various contingents toward the close of November was about as follows: Americans, 1,300; British, 10,000; Russians, 15,000; Germans, 20,000; French, 16,000; and Japanese, 22,000.

The Manchu differs considerably from the Chinaman of the southern provinces. He has more hair on his face; his cheek-bones are higher, his complexion darker, and he is more warlike than the true Chinaman. They are wrapped up in their own ignorance and superstition, satisfied with their present condition, and look upon all Europeans as ignorant barbarians. They are not without some excuse for despising our religion and civilization, for, judging from the conduct of the Christian troops in 1860, and again in 1900, we are not far behind them in brutality. Many outrageous crimes were committed for which there was no excuse whatever. After Peking had been captured, all the regular Chinese troops were withdrawn out of reach, and made no threats, or molested the line of communications in the slightest way.

The French, Germans and Russians, however, continued to receive information that the small posts along the line, and Peking itself, were in danger, and kept on sending out detachments to drive off alleged masses of Boxers. On the 19th of November, with no other escort than a guard of two men for some prisoners, I drove from Peking to Yangtsun. The guide having lost his way, we proceeded across country, passed close by the gates of a walled city, camped one night, and arrived at our destination without having been molested in the least. We were surprised to learn that we had passed through the heart of Boxerdom, and that the Germans had a battle there the day before. The American troops refused to take part in these massacres. A Chinaman is a good deal of a stoic, but even he appreciated our conduct, and contrasted it favorably with that of the other troops.

We found the British officer fully up to his reputation—a clean, courageous gentleman. He is, of course, the backbone of England's native troops. The administration and higher grades are in his control, the native officers seldom rising above the rank of captain. The Indian troops are very well disciplined. They have the highest regard for their British officer, and rush to his defense in moments of danger, surrounding him and shielding him from impending harm. The officers, for their part, are exceedingly scrupulous in their regard for the customs of caste and religion of their native troops and camp-followers. Of the latter there were thousands; including those on

the line of communication, there were about 9,000 camp-followers for 10,000 troops. All the officers have their grooms and *syces*. In the cavalry regiments there is a grass-cutter with a pony for every two cavalry horses, and all the regiments have native servants allotted to them according to a fixed schedule. The discipline of the camp-followers also was excellent. There was, of course, no drunkenness, this being prohibited by the Mohammedan religion. Very few cases of brutality came to my notice. Their looting was to a great extent authorized, or at least tolerated and regulated. Our few camp-followers, such as packers, teamsters and employees, made a great deal more trouble than all the Hindoos. These native troops possess



BRITISH INDIAN TROOPS, 24TH PUNJABS: 3 PRIVATES, 1 PIPER.

good marching powers, easily take care of themselves in the field, and are handled with little difficulty. I have some misgivings about their fighting qualities, and think that their officers would not be specially anxious to engage modern European troops with them.

In forming an opinion of the qualities of different European troops, it must be remembered that a great deal of attention is paid to outward appearance, corresponding to what the Chinaman calls "face," and that they always put their best foot foremost. On occa-

sions like this, when they are likely to come in contact with foreign troops, they send picked bodies of men into campaign, unless urgency prevents. Thus the officers with whom we are likely to come in contact are far above the average in appearance and intelligence, and we are likely to see only the good side, and not the defects.

The discipline in the Russian forces is rigid, and consists principally in absolute obedience to the officers; consequently any excesses committed by Russian troops must be blamed entirely on the officers. The military instruction of the men is quite good, considering the low order of intelligence prevailing in the ranks. The Russian soldier carries his long bayonet always fixed, and would be a tough customer at close quarters. I do not believe that their shooting is good, and that in cases requiring individual action they would be hard to contend against. In my opinion, they are too brutal and cruel to possess courage of the first order.

The Germans took no part in the principal campaign. Their instruction is excellent and their discipline of a high order. Their noncommissioned officers and men appear to be educated. Their soldiers strike you at once as being very young, and that a hard campaign would tax them severely. The death-rate of the German troops in China is greater than that of any others. Obedience to their officers being a religion with them, these troops certainly would fight well. The first French troops to arrive were from Tonkin and Cochin China. They belong to the criminal class, and were enervated by the climate. Their discipline and instruction are poor, and they possess no great value as field troops. The regiments that arrived from France later on were of much superior quality.

The Austrians and Italians were too few in number for a basis of opinion.

Much has been said and written in praise of the Japanese troops. They are stout little soldiers, good marchers, well instructed, and have an excellent organization and administration. The Japanese had great advantages in this campaign in the proximity to their own country, previous operations against the same enemy, and thorough knowledge of the present theater of war through an organized spy system. Their fighting qualities against Europeans have yet to be tested. I believe they have been somewhat overrated.

There was great friendship between the American and Japanese soldiers, and the relations between our officers and theirs were of the pleasantest kind. The character of the Japanese officer seemed to be frank and generous, considering their very limited pay; but it must be remembered that they are Orientals and that all Asiatics are tricky.

In conclusion, I would say that the American soldier came back from China with a distinct feeling of personal superiority, and that when our Uncle SAMUEL calls him, he will not be afraid to meet any of them.

3/31/11

CAVALRY EXPERIENCES FROM 1898 TO 1901.

By Captain KIRBY WALKER, Fourteenth U. S. Cavalry.

THE employment of our cavalry during the past three years has been so active and varied that a few remarks and comments concerning its service should be both interesting and profitable. The widely scattered lands of Cuba, Porto Rico, China, Luzon and several other islands of the Philippine group have witnessed the strength and courage of the American cavalryman and have been astonished at the size of his horse. This work has been carried on under a tropical sun and in tropical rains; on mountain trails and mud roads and across torrential streams; in rice-field and in thicket and forest; with rations and transportation and without them; mounted and dismounted; on gunboats and on small boats; against civilized people and against savages; and always to the credit of the cavalryman. It is doubted if our service has ever been so diversified. It is, I believe, the only period when our cavalry has served outside of the United States except during the Mexican War. These three years have been a practical training school for our officers and men, and we can now go forward with renewed and strengthened cavalry spirit. From a period when it was stated that cavalry charges were no longer feasible and that cavalry could not stand the terrific fire of the magazine small arms, and that cavalry was declining in importance, we come to a period of cavalry triumph, when, by reason of its recognized worth and the valuable work accomplished in Cuba and the Philippines, our own cavalry was increased by one-half in number of regiments and more than that in number of men. It is pertinent to remark here that in the last two years England, Germany, Russia, and, I believe, some other European nations, have increased their cavalry arm of the service. Obviously this cannot be called the period of decline of cavalry. The cavalry of the future, with tireless, energetic and ambitious leaders at its head, will give as glorious traditions as has the cavalry of the past.

In particularizing upon the work done by the American cavalry, the writer of this paper will comment upon that only which came under his own observation or which he learned from other officers.

When most of the regular cavalry regiments were mobilized in Southern camps just before the campaign in Cuba, the strength of the troops was doubled by the accession of recruits. For years before various plans for increasing the fighting strength on the outbreak of the war had been elaborated and discussed. It is the opinion of many who had much to do with these recruits, that the plan adopted was not a good one. It is believed that had the campaign against Havana been consummated, as was expected and planned, the work of the regular cavalry would have been retarded rather than advanced by this supposed accession of strength. It is proper to say that there are those who hold that the plan adopted was the best that could be devised. However that may be, the recruits were not sent to Cuba, and the efficiency of the dismounted cavalry at Santiago, according to unprejudiced observers, was equal to that of the infantry.

Three troops of the Fourth Cavalry in the Philippines were for several months mounted on the small native pony. Several other troops served dismounted for a time. Three troops were in *cascos* towed by a tin gunboat on the Laguna de Bay, and did efficient work in the lake towns. These were jocularly known as the "horse marines." At times troops were put on small gunboats to make landings at coast towns that could not be reached by inland trails. At first it was said that cavalry could not be used mounted in the Philippines, on account of the lack of proper forage and the physical difficulties to be overcome. This was disproved. The cavalry with General LAWTON on his northern campaign did the most effective kind of work, and this in face of rains, deep mud, rapid torrents, destroyed bridges and other physical difficulties almost inconceivable. The resolution of the man and the power of the horse overcame them all. In General SCHWAN'S southern campaign the cavalry made rapid flank marches, surprising, scattering and destroying. In this campaign, illustrative of rapid work under difficulties, was the pursuit of a body of Filipinos by a squadron of the Eleventh Volunteer Cavalary along a road which crossed a series of deep ravines, the Filipinos making a delaying fight on the further side of each ravine. The leading troop would dismount, dislodge the enemy, and the next troop would then rush through and resume the pursuit without losing any precious moments. This rapid work was so discouraging to the Filipinos that they were finally forced to scatter in the brush and abandon the road entirely. In nearly all parts of Luzon and in several other islands the cavalry has done persistent and valuable work. The work of mounted troops was recognized as so valuable that most of the infantry regiments were issued forty or fifty horses each, for the use of scouts.

On account of the character of the enemy and more especially the character of the country, most of the fighting was done dismounted. However, there are a number of cases of successful charges by detachments. Curiously enough, in a charge by a detachment of Troop "H," Fourth Cavalry, the only man who dismounted, a sergeant, was killed. In China a squadron of the Sixth Cavalry, after engaging the enemy dismounted in front, made a mounted charge in conjunction with a flank attack, killing about 150 of the Chinese.

The experience gained in the sea transportation of horses and mules will be of great value in the future. A few animals were lost at Daiquiri, Cuba, from being thrown into the sea to swim ashore, there being no lighters available. With the exception of two trips to Manila by the sailing vessel *Tacoma,* all the animals were carried on steam transports, fitted up for the purpose. Comparatively few died of disease on the way. The greatest loss was occasioned by the *Aztec* running into a typhoon. Of 400 animals on this vessel, one mule was landed in Manila, which mule died afterward.

Lighters were available at Manila for the landing of horses, and most of the animals were put ashore there. The First Cavalry lost some animals in making a landing at Batangas. A squadron of the Fourth Cavalry landed 400 animals in northern Luzon from a transport a mile from shore, with the loss of one animal, small boats being used to lead them ashore. In addition to the ordinary military duties, a number of our officers were constantly engaged in civil administrative work, requiring the collection and disbursement of funds, and also in building roads, bridging streams and other engineering work.

The Boer War affords a broader field than our operations in Cuba, China and the Philippines, for comment and criticism regarding the use and importance of mounted troops. Here again we find the cavalry star in the ascendant. The British cry from South Africa has been for cavalry, more cavalry, and then cavalry. Something over 200,000 animals have been transported to Cape Town, and British agents in various parts of the world are still buying and shipping them. Their mounted infantry has done some good work, but it has proved more expensive than cavalry, owing to the enormous destruction of horses. The Boer is a natural horseman, and it is owing to his mobility that he has been able to strike in unexpected places, to make his fights in one defensive position after another, and to turn a British flank attack into a frontal attack. Had the British been as mobile as the Boers, the war would probably have been ended months ago.

The British failures in the earlier part of the Boer War were brightened only by the successes of General FRENCH'S cavalry. Perhaps the most brilliant events of this war have been the relief of Kimberley by FRENCH'S cavalry, after repeated failures by infantry, and General DE WET'S breaking through the British lines when it was thought he was entirely surrounded. Both of these movements were in the nature of cavalry charges. I quote the comment of one of our infantry officers, a spectator in this war: "The British cavalry was neither sufficient in number nor trained in full appreciation of its modern *rôle,* and mounted infantry had to be resorted to as a stop-gap. But mounted infantry is at best a makeshift. . . . . Nor will the British mounted troops be a match for the Boers until they can ride, not like mounted infantry, but like cavalry; and until they can fight, not like cavalry, but like infantry. The only cavalry lesson we draw for ourselves from this war is, that we cannot have enough of our kind of cavalry."

Mobility is an essential characteristic of cavalry, and by means of it large bodies of well-trained horsemen are enabled to hover around the flanks and rear of an enemy, cutting communications, destroying its commissariat, trains and munitions, producing panic and confusion, and generally delaying its movements. These duties, together with scouting, reconnaissance and actual contact on the field of battle, make cavalry a most valuable and important arm.

The Boer War has emphasized the value of our system of armament and training of cavalry. In future wars cavalry, well led, skillful in the use of its weapons, and trained to fight mounted or dismounted, will render such an account of itself as will be most gratifying to all lovers of that branch of the service.

3/31/11

TRANSPORTATION OF PUBLIC ANIMALS BY SEA.

By Captain L. M. KOEHLER, Fourth U. S. Cavalry.

MY observations on this subject are based upon actual experience in carrying horses and mules from San Francisco to Manila. In '95 I had selected the subject of "Army Transportation" for discussion, as I had been an acting quartermaster at a frontier post ninety odd miles from a railroad, and had become interested, owing to the many difficulties experienced in keeping a large train in serviceable condition for the mountain roads: and in that article I touched upon my present subject in so far as I could find data furnished by the English Army, which was the only one up to that time familiar with the subject. Upon reporting at San Francisco for transportation to Manila, I was informed I would be detailed in charge of a horse transport; and as there were two in the harbor to sail, I was given the choice, taking the one that was to sail first. After receiving my order, I visited the transport, and found everything in apparent readiness for the animals to be placed aboard. I was ordered to report to the quartermaster in charge of the transport service, who, I discovered, was a most important personage; and to comply with my orders to report in person I had almost to resort to personal encounters to run the gauntlet of clerks, messengers, doortenders and acting quartermasters in the outer offices, all believing it their one duty to protect the all-important functionary in his secluded and private office from being annoyed by any one so unfortunate as to be detailed for duty on a horse transport.

The quartermaster told me where the animals could be found for cargo on my steamer and handed me the reports of a number of officers sent back from Manila, all speaking highly of the horse sling; but the most enthusiastic in its praise, having placed a sling under each animal upon leaving, admitted that he lost all his animals, and pictured most vividly the horrors of the storms encountered and the great danger to life for a man to go among the animals during rough weather, although resting so safely and securely in their slings on smooth seas. I concluded a sling was something to be avoided; at least, if they did not protect in a storm, I could not any more than lose mine without slings, and so save a great amount to the Government and my men the work of slinging the animals; and I trusted the horses and mules upon taking

their departure from this life might forgive me for not having provided them with a rare treat, a sling ride, before their demise.

I was made an acting quartermaster and commissary and had a volunteer medical officer, a veterinarian, thirty odd volunteer soldiers of different organizations, about seventy so-called teamsters, and three hundred and ninety horses and mules report to me, to add to the comfort of a sea voyage destined to last thirty-one days. I requested a civilian quartermaster and commissary clerk, but failed to procure such service, as the Goverment had all it could reasonably be expected to do in providing such luxuries for the volunteer quartermasters engaged in this seafaring business; and such poor regulars as myself could find amusement and kill *ennui* by performing clerical work while the animals has the good taste to be riding the seas comfortably.

The animals were selected from a herd of a thousand, and were tested for glanders, and, upon my suggestion, were placed upon a bran and hay diet three days before loading. I did not wish them to be filled with grain upon embarking, and the bowels being loose, I believed them in the best condition to withstand the new experiences and the effects of sea sickness. Before receiving the animals, I had the ship thoroughly washed and disinfected with a weak solution of carbolic acid in the lime-water used in spraying the stalls.

The steamer was lying alongside the dock and low in the water, so the ramps, fitted with good side-rails, were almost on the level, and it looked as if loading would be simply a question of leading the animals aboard the ship. At 1 P. M., the date of sailing, the animals were brought from the Presidio by the soldiers and quartermaster employees, and loading began. I had provided several packblinds, foreseeing some would prove obstreperous, and I wished no delay. I found that with the precaution it was not possible to load and get into the stream in three hours, in time to avail ourselves of the tide; and seeing I was somewhat anxious, one of the ruffians contracted as a teamster proceeded to help me out of my trouble by procuring a "2x4" scantling and knocking down a mule. All labor had to be suspended a few moments to remonstrate properly with this brute, and to impress gently upon all to sail with me what code of morals would be in force on the trip in dealing with my four-footed friends and passengers.

Someone here appeared with about twenty feet of one-inch rope, and throwing it over the haunch of an animal with half a dozen men on each end, the horse or mule made a hurried acquaintance with the ship. This worked so well that ropes were employed on both ramps and on the gangways leading from deck to deck. The stalls on this vessel were constructed so close to the sides of the ship and with such

narrow passages between the rows as to make it necessary to remove all side-rails. The loading of the horses was proceeded with, beginning fore and aft, leading down the tiers of stalls, and when the horse was at his stall he was straightened out and held in place until the side-rail was secure; and so on until the few in midship could be backed in place by removing the breast-boards. I kept the horses and mules on deck to themselves as much as possible; the horses on the upper decks and the mules in the hold of the ship. As soon as I found out how to induce the animals to go aboard the loading proceeded rapidly, and by four o'clock we were ready to go into the stream. I saw that the ship was well supplied with forage for the animals, and that the ship's stores were ample to sail for many days more than necessary to make the trip.

Before sailing I discovered that a board of survey had acted on my vessel and found her not entirely seaworthy and not fitted to carry stock; but the authorities thought the necessity of the vessel going as far as Honolulu was great enough to take the risk, and of course I would not protest after the officials had provided me with the interesting fellow-passengers I have enumerated.

A pilot was taken aboard and we were off on our long journey across the Pacific. Everyone seemed delighted that we had made our start, and one could not help but conclude, hearing the men laughing, shouting and singing on the upper deck as they viewed the city for the last time for months, and looked towards the Golden Gate, that all labor and trials were of the past, now we had gotten under way; but this dream of idleness and bliss was of short duration, for as we crossed the bar the pilot permitted us to touch the bottom a few times, as a reminder that we had not yet said good-bye to Mother Earth, and with the rough seas encountered the old steamer pitched frantically and rolled so unpleasantly that about one-third of the animals lost their footing and after a short struggle lay in all kinds of positions in their stalls. The men were at once called upon to assist, but unfortunately, most of them were wanting aid along with the mules, and it was the blind leading the blind. Confusion reigned until the seas were smoother and with a little effort the stock was placed on its feet.

The employees and soldiers were divided into six guards for the care of the six half-decks fore and aft carrying stock. The soldiers were squadded by themselves and given the horses on the upper deck, and the civilian employees, with the appointed trainmasters, were assigned the mules between decks and in the hold. Later in the evening the animals were given what water they wanted and the feed-boxes were put in place and supplied with hay during the night. No grain

was fed, and most of the animals refused water and hay and acted as if they were suffering with sea-sickness along with many of the men. Next morning a bran mash was fed, and about 7:30 the stock was watered. Then came the greatest problem of all, the cleaning and disinfecting of the vessel. It was found that most of the stalls were built so close to the sides of the vessel that it was almost impossible for a man to get in rear and make an attempt to clean the stalls; and the passageways were so narrow as to preclude removing the breast-boards and leading them into the passageways. Upon investigation, it was found that by sawing the handles of the hoes to about three feet, and most of the brooms and forks to the same length, two men working together, one holding the animal while the other from a cramped position in rear used his shortened implements, could thoroughly clean the stall. It was such an effort that had there been no fear of endangering the lives of men and animals, the temptation not to clean the stalls until we reached Honolulu would have availed; but a visit to the hold quickly dissipated the idea that any such thing could be. Many experiments were resorted to during that day to facilitate the work, and about 3 P. M., an inspection showed the work could be done. The sailors rigged up hoisting apparatus fore and aft, by which the manure and refuse from between decks and the hold was brought above and thrown over the sides of the vessel.

The scuppers, which are the sewers of a ship, are constantly watched, kept open, and in working order; those with no direct outlet were connected with the bilge tanks and were emptied by the ship's pumps twice a day. After the first day's effort, the crews had to be changed, as it was found the labor in the hold was greater than anywhere else; so the forces were proportioned according to the labor. The men quickly grew accustomed to their work, and each day found the ship ready for inspection some earlier than the day previous. It was a revelation to us that a ship so poorly adapted to the transportation of animals could be kept in such a thoroughly clean and sanitary condition. The effort required was out of all proportion to what ought to be demanded of men under such conditions. Daily the fire hose was used in cleaning the most inaccessible stalls and flushing the scuppers and drains on all the decks. It was but a day or two before the sides of the vessel were covered with hay and manure, and stained from the urine from the scuppers; so we carried the insignia of a horse transport, that all with whom we might come in contact could not be mistaken as to our cargo.

I will discuss the different questions as they presented themselves to me from day to day, and not in their order of importance.

WATER.

The water question arose at once, and I found upon investigation that the animals between decks and in the hold could be watered by the use of a hose and bucket, one man carrying the hose supplied with a stopcock nozzle and two with buckets, filling and watering alternately. This worked very well, and was satisfactory and expeditious. When it came to watering the stock on the upper deck, it was found the supply tank was placed so low as to give no flow on this deck, necessitating the carrying of water from the deck below, a most laborious undertaking, and in rough weather so difficult that it required constant supervision to see the stock did not suffer. Investigation showed that to raise the tank would require a very heavy framework connected directly with the ship's beams, as the weight of the water and tank is great, and when not completely filled, in a rough sea, the strains to which the support would be subjected would be enormous.

Both vessels I commanded had the same fault, and although attention had been called each trip by the officer in charge, no change was made, on account of the expense and the vessels not being adapted in construction for the necessary framework. Vessels carrying stock ought to carry fresh-water ballast in independent tanks, arranged to be cleansed and examined from time to time. If the vessel is dependent on its condensers, it will often happen that the water is too hot to be given the animals; but if the condensers are properly connected with the fresh-water tanks, and all the water turned into them from day to day, and the tanks not connected with the condensers for the time being supply the tank on the upper deck, which is the one in constant use, then the water is always of good temperature and palatable. There should be more than one ballast tank, as on the second vessel one burst and the water escaped into the bilge tanks and limbers and had to be pumped overboard; then there is danger of the condenser not working properly and one or more tanks becoming salt before the trouble is located. Safety demands that the vessel have independent fresh-water ballast tanks, that they can easily be connected with the condenser for renewal and with the pumps for supply purposes. The ballast should be more than sufficient for all uses of the ship for one voyage; but if only partly filled, would cause the ship to roll, one thing to be avoided on an animal transport. One thousand tons of fresh water will carry five hundred animals and crew for upward of fifty days.

VENTILATION, FRESH AIR.

Fresh air is constantly needed for the animals, and can only be supplied to those in the hold and lower deck by artificial means. Cold air

can be forced in by means of electric fans, and the hot, foul air can be taken out by exhaust fans properly placed. Either system, if in good working order and intelligently placed, will answer the purpose; but the use of both is recommended, and if but one can be obtained, then the exhaust system. The hatches in our animal transports should not be less than 10 feet square, and the larger the better. The sailing master should be interested in the welfare of the stock from the moment they are placed aboard, and should be required to see that the wind sails fore and aft at the hatches and other ventilators are fully trimmed all hours of the day or night. My relations with both skippers were most cordial, and the ship's day and night watch never neglected the wind sails. The guard in the hold tested the cold-air ventilators every fifteen minutes, and if not satisfactory, report was made to the ship's watch on the upper deck. The exhaust ventilators were frequently tested to see that hot and not cool air was being forced out.

No matter what system is used, whether the blower or exhaust, the fresh air must be conducted in rear of each animal through the supply pipes, and by opening or partly closing the shutters in rear of each animal, regulate the supply. The foul, hot air lies under the decks and in the ends of the vessel, and in exhausting the opening of the exhaust pipes must be at these places. Nearly every horse transport used had its ventilating system placed so as not to derive full benefit. A few had the openings of the exhaust pipes on the floor of the deck, thinking the foul air filled with carbonic gas was heavier than the cool, fresh air and would be found there. Most of these errors were eventually remedied.

The power for running the fans should be in duplicate, fore and aft, so if any one breaks down, the other can be started. Electric fans are to be preferred to those run by steam for the Philippine trade, as the former are so much more portable, and then the steam pipes heat up the hold too much for a tropical climate.

Besides the fans, many auxiliaries must be employed to keep up the fresh-air supply. Every porthole on the decks carrying animals should be provided with an iron air-scoop, and whenever practicable, night or day, should be employed. Often I had the ports open when the sea was not high, but shipped many tons of water in the cause of refreshing air. The water did no harm, as it was soon swept into the scuppers and led to the urine tanks or the limbers and then pumped overboard. Should the storm be great enough to require the hatches to be battened down, the animals are not in danger, provided the ventilators are capped with the conical screw cap.

The animals should carry best in the hold and lower decks, as they are not exposed to the sudden changes of temperature or to the draughts as those on the upper decks. Both vessels had only canvas curtains for protection on the two upper decks, which were not adequate, necessitating the shifting of animals from deck to deck on account of contracted colds and fear of pneumonia. On the *Athenian*, the superstructure of the upper deck was of rough boards, and before leaving Honolulu I had it covered with paulins; but they proved an insufficient protection from the heavy rains encountered.

DISINFECTANTS.

Among the medical supplies carried for the horses was an item of 250 gallons of chloro-naphtholeum at $2 per gallon, 10 gallons of creolin at $4.50 per gallon, 90 gallons of antiseptum at $2.50 per gallon, and 300 pounds of chloride of lime, $15; total, $910 for disinfectants for carrying 400 animals from San Francisco to Manila, a cost of more than $2 per head. When I requested a supply of horse medicines as found on the supply table in force, for 400 animals for 30 days, I was laughed at, and informed that a more liberal policy was being carried out, and that besides I would carry a six-months supply for all animals taken. I had no opportunity before sailing to check the various horse medicines, and you can imagine my surprise to see such articles as 100 doses of malein, $32, when all the animals had been tested for glanders; 5 gallons of witch hazel distilled, $1.30 per gallon—enough of a lotion to have had the animals shaved; $19.20 worth of surgeon's silk in addition to two coils of catgut—sufficient in amount to care for the wounds should the animals be subjected to a bolo engagement daily for months; dental halter, $10, and hobbles, $24, reminding one that to have a dental operation performed there is no place like a rolling, pitching horse transport. I was so astonished in checking the invoice to find that an expenditure of $1,540.57 had been made for horse medicines, and this, with the $910 for disinfectants, made a grand total of $2,450.57—a cost of more than $6 per head. I only used five gallons of the chloro-naphtholeum and about half of the antiseptum, and I thought at the time it was wasting it, and I am more firmly convinced of the fact to-day.

Manual labor, with a free and frequent application of the hoe, rake and broom, are the only reliable disinfectants for a horse transport. Vinegar applied with a scrubbing-brush to the feed-troughs every few days is a good precaution, and I found a little chloride of lime, which is only five cents per pound, thrown into the scuppers and drains and then washed out with the fire hose, helped take away the horsey and

ammonia smell of the hold. Creolin, antiseptum and chloro-naphtholeum are too expensive and eat up the iron and wood of the vessel to such an extent that their use should be forbidden. It is simply impossible to clean a ship with disinfectants; and if the decks were washed with fancy preparations, it would still demand labor to remove the dung and urine; and if the two latter are thoroughly policed, you can travel without the former.

If it is deemed advisable to send a six-months supply of medicines, they should be kept intact and invoiced to the receiving quartermaster at Manila, just the same as other stores, and a reasonable amount taken by the transport quartermaster for use on the voyage. These should be carried in the prepared form as much as possible, such as lotions, colic mixtures, stimulants, salves, etc., so as to require no compounding when needed.

EXERCISE.

Many officers carrying animals have considered the question of exercise a most important one; and while exercise, fresh air and sunshine are important factors in the health of man and beast, yet the exercise can well be dispensed with in a journey requiring no longer than thirty days.

In the first experiments animals were taken north and disembarked at the Aleutian Islands, or later at Honolulu, on the theory that the animals needed rest and that their legs and health would be impaired unless some such expedient were resorted to. For a horse to stand in his stall on board a moving vessel for thirty days I know is no hardship, as he is constantly exercising, balancing himself with the rolling of the vessel, which is never entirely without motion.

I experimented with fifty animals regarding their legs, not permitting the men to touch them with hand or brush, to see if for want of walking exercise they would stock up and swell; but I found not a single case.

A sailing vessel had a track built in the hold, and the horses were walked and ridden daily (weather permitting). This was good for both men and the horses; the diversion was a good pastime, but nothing more. The point I wish to make is, that it is not at all essential to the health of the animal.

One officer made quite a report and spoke of this important subject, and how he finally solved the problem by having the upper deck enclosed with a strong railing, and daily the animals were led up the runways and walked and ridden about the deck. While on deck they were groomed, and this time was also used in cleaning the stalls of the

absent promenaders. This pictures to us calm seas and beautiful days, ideal conditions such as one might expect in carrying animals on a Mississippi steamer. Fortunately, hundreds of our animals have made the passage with scarcely encountering a ripple on the sea, and would have been landed in good condition had they been shipped loose on the decks without stalls; in fact, some few were transported in this way.

The report advocating exercise as necessary goes on to state, under the heading of "Feeding," that he fed nearly full forage, as he found that an animal exercising all day and night in balancing himself worked quite as hard as an ordinary mule would in the service anywhere; so required the feed, and from his argument I conclude required no provision on deck for additional work and exercise.

The thousands of dollars expended in fitting up transports with exercising facilities and the time and labor necessary in unloading and loading at intermediate ports has all been thrown away.

The lessons taught by the sailing vessels, I trust, are sufficient to last as long as our Government may ever have occasion to transport a single animal by sea. The length of time required for these crude carriers is so great that it wears out the patience of both crew and animals, and the expense is out of all proportion to results accomplished.

DISPOSITION OF THE ATTENDANTS.

I kept the soldiers and civilian employees squadded separately, and assigned a number to each half-deck proportioned to the work. At night two were constantly employed as a running guard in two-hour shifts, and went from animal to animal and replaced the thrown-out hay. The days and nights of storms and rough seas all were required to be about the animals, to encourage, quiet and to assist them when in trouble.

For three nights the men slept right at the heads of the animals in the passageways, and to this I attribute our successful voyage.

FEEDING.

The first few days the animals are striving for their sea legs and are quite as unhappy as the men, and "stables" interests them but little. During this probationary period they were watered at 8 A. M., 11 and 4 P. M., and occasionally one was given a drink during the night if he showed restlessness. The feed-boxes were kept supplied with hay all night. The men on watch kept picking up the hay from the passageways and placing it in the small feed-boxes, and when eaten up it was renewed, as the boxes held but half a feed, about 6 pounds.

Bran mash was fed freely, and about the third day half a ration of

oats. From this on I fed about as I would in the post, excepting that water was given more frequently. I had no serious cases of sickness; a few mild cases of colic and some contracted colds on the upper deck from exposure.

Weather permitting, I removed the breast-boards and placed hay for the mules on the floor in front of them, as they seemed to feed to better advantage in this way. The animals developed a sea appetite and showed their impatience at "stables" by calling, biting and kicking to a greater degree than I notice daily in the post. Green forage, such as beets, carrots, etc., always carried by the English and by some of our vessels, are only an additional source of colic and are to be avoided. Alfalfa hay should be fed if obtainable, as it keeps the bowels in good condition.

SLINGS.

Strange that the advocates of this method of torture are the officers who employed them and encountered great losses, from half to all their cargo. One who slung every animal from Seattle says he encountered rough weather at once, speaking of it as a gale; and, although not entirely satisfied regarding the absolute necessity of the sling, concluded it saved the lives of many of his animals in the seven-days gale before making Honolulu.

This same transport expert tells of how the animals, when tired out from the rolling of the ship, would give up and lie and rest in the sling, only to turn a somersault front or back, not mentioning the terrible internal bruises received by pounding the side-rails with their weight of 1,000 pounds or more.

The only reason he did not lose every animal enjoying the sling was that his reported gale was not quite gale enough. Had it been a good typhoon, the animals would have all been lost, and he would have reported the storm the cause and overlooked the real one—*his slings.*

This report stated that upon leaving Honolulu he experienced severe storms, but did not use his slings, and the animals did not suffer; and the reason given was that they had acquired their sea legs, forgetting that, without slings, somersaults and other playful gymnastics were denied them.

I only experimented with ten, and found that they were unsanitary, always reeking with the urine.

Just as soon as the weather was rough and they found that by squatting six inches they had support and relief to their tired legs, they fell into the sling, and the next good roll turned them over head or tail foremost, just as far as they could go, or they pounded the sides of the stall with thuds that resounded throughout the ship.

It is easy for a horse in a sling to break his neck or become injured internally, and no matter how often he may escape and by help of the men be put on his feet again, he will be in the same predicament every time the ship acts badly, and sooner or later he is a disabled animal.

It is not a sling the horse needs in a gale, but a suitable stall, and one that will never give way.

The transports for a long time were supplied with one sling for each animal at a cost from six to ten dollars, and many vessels turned them in at Honolulu as dangerous, and the others were receipted for and stored at Manila, where I believe thousands are to-day. The transport returned to San Francisco without them, and was again supplied.

The aggregate cost of these stores, with the value of the animals they murdered, would go far towards building an ideal horse transport. I feel so strongly on this subject that I can leave it only with the statement that a sling for an animal at sea is an invention of the devil.

STALLS.

I will close my discussion with remarks upon what a properly fitted stall for a sea voyage should be.

The animals will make the journey without exercise, without absolutely perfect sanitary conditions, without slings and with moderate care, providing the one important feature, the stall, is suitable and so strong of construction that neither in calm nor storm can he possibly break it down, leaving him at large on the deck, a menace to his own life and to that of the men fearless enough to try to confine him. All the great losses of animal life were occasioned by the stalls giving way in the typhoons and the animals falling and lunging about on the decks until put out of their miseries by death.

The men could not go among the loose animals, but had to seek places of safety for themselves. The slings played an important part in breaking down the stable and freeing the animals. Anyone who has traveled with animals can easily picture the terrible sight of a score of them loose on the decks, falling with every pitch of the vessel and struggling in their frenzy until disabled with broken limbs or internal injuries.

Those fortunate enough to have taken one of these transports from San Francisco to Manila without a severe storm cannot fully realize the importance of a good stall. Many trips were made with such perfect sea conditions that no stalls would have been necessary, and the

animals could have been tied anywhere and enjoyed life just as much as on land.

The Arabs for hundreds of years have carried their stallions in open sailing vessels to India without stalls, but in their case they build strong pens and fill them so completely that the stallions can move in no direction. This is not comfortable for the horse, but is an ideal weather precaution. Packed like so many sardines in a can, turn the ship over and they are still in place.

The stanchions, head and tail, should be connected with the ship's beams, and of iron or steel; if of wood, then 4 inches by 6 inches and of oak; the side-rails must be of hard wood, 2 inches by 12 inches; and the breast- and haunch-rail 2 inches by 8 inches. All must be adjustable so the breast-rail will be at the height of the breast, the side-rails that of the flanks, and the haunch-rail 6 inches above the hock.

The stalls from 2 feet to 2 feet 4 inches in width, and from 6 feet 6 inches to 7 feet 6 inches in length. No fixed dimensions can be given, as a cavalry horse of 900 or 1,000 pounds will not carry with the same dimensions as a mule weighing 1,600 pounds. The stalls must either be adjustable or built for different-sized animals, and the animals shifted until placed in proper stalls.

Stanchions, end- and side-rails must have all corners rounded, and should be as smooth as the carpenter's art can make them. No padding, no canvas, no leather can be allowed, as in time it will chafe the occupant and in a short time a large abscess on breast, side or haunch will develop. The breast-boards on the *Centennial* were well padded and covered with good canvas, and it was found necessary to grease them daily, and with this precaution many had to be removed, as the tender breasts of the horses would not stand the contact. Smooth tin plates were used on the *Athenian* for haunch and breast, but the tin is soon bent and corrodes from the perspiration and sea air, and is then sure to chafe. Nothing is satisfactory but a hard wood of fine grain, perfectly smooth and kept so. This can be done by a daily application of soft soap or grease or other expedient. Best of all would be a cover of ⅛-inch metal with a very heavy coating of non-corrosive nickel plate.

Some vessels landed at Honolulu and Manila as high as thirty animals with such abscesses that after a week's treatment it was disagreeable to visit the open sheds where they were kept, owing to the stench from the wounds. Some vessels landed every animal with hair and skin rubbed off of some part of their anatomy, and few could boast of a clean bill of health on this score.

The animal should stand on a hard-wood mattress made of 2-inch hard wood with openings 2 inches square, and bolted to this should be two 2-inch square hard-wood cleats in front and two in rear for the feet to hold to. Six inches in front of the row of stalls should be a "2x4" spiked to the deck, so when the animal loses his cleats he must be stopped by this larger one before falling. The same precaution must control in rear of the stall. When a storm is expected, it is well to provide the decks with fine cinders and throw them in each of the stalls. This, I believe, kept many an animal on his feet at a critical moment.

The feed-boxes should be 10 inches by 20 inches on the bottom, straight up and down where attached to the breast-board, and beveled on the sides and rear, the top being 18 inches by 26 inches. Each is provided with two hooks, to slip into the staples of the breast-boards or stanchions as the case may be. They are made of galvanized iron, so as to be easily cleaned, and beveled, so as to slip one into the other for storage and to make them portable. They are all alike, so as to be interchangeable. On the *Athenian* they were made of 2-inch pine, were not interchangeable, and weighed about sixty pounds, requiring two men to handle them whenever they were removed for cleaning, and were so bulky that only a few could be removed at a time.

With each stall should be a strong halter with a good wide crown-piece and an extra band above the nose-band, on each side of which is sewed a 2-inch iron ring and to which is fastened a strong adjustable chain connected with the stanchions. The two chains are of such length as to make it impossible to strike either stanchion or the beams under the deck. In calm weather the chains can be unsnapped from the rings, but when at all rough they should be in place.

Were I permitted to fit up a vessel, I would have a collar and hames in each stall, with tugs attached to the upper part of the side-rails, and a strong breeching attached in like manner. Only in a severe gale or typhoon would it be necessary to take up the tugs so as to give the animal 6 inches play to the front and 6 inches to the rear, and with the strong cleats for his feet, I do not believe he could fall down as long as the ship rode the seas. This would also keep him away from the breast-board and haunch-rail and avoid chafing. If the haunch-rail is not to chafe, it must be placed at an angle of 8°, so when the animal goes back and sits on it he touches it with the broad muscles of the haunch over the entire surface of the rail.

The cleats are not quite as wide as the stall, nor should the mattresses quite meet, thus permitting the urine to find its way out and

to make cleaning the stalls less of a task. In a well-arranged vessel the stalls would be at least 2 feet from the sides of the vessel, and the passageway at least 6 feet between rows of stalls, thus enabling the crew to clean and shift the animals from place to place as might be required. These figures for four rows of stalls would require 28 feet for the stalls, 18 feet for the three passageways, and the 4 feet for the scuppers at the sides of the ship, making a beam of 50 feet, which ought to be the minimum width.

The vessels I saw had the sides of the ship for the rear of stalls, and the two center tiers were placed tail to tail, and horses rode facing toward the sides, while they should ride facing the center of the ship.

In each tier of stalls there ought to be an extra one, and in cleaning the stalls the animal next to the vacant one should be placed therein while his vacant stall is cleaned, and so on throughout the tier. With the ample 6-foot passageways, the animals could be led into them on calm days and groomed and rubbed, which, while not necessary, would undoubtedly add to the comfort of the horse.

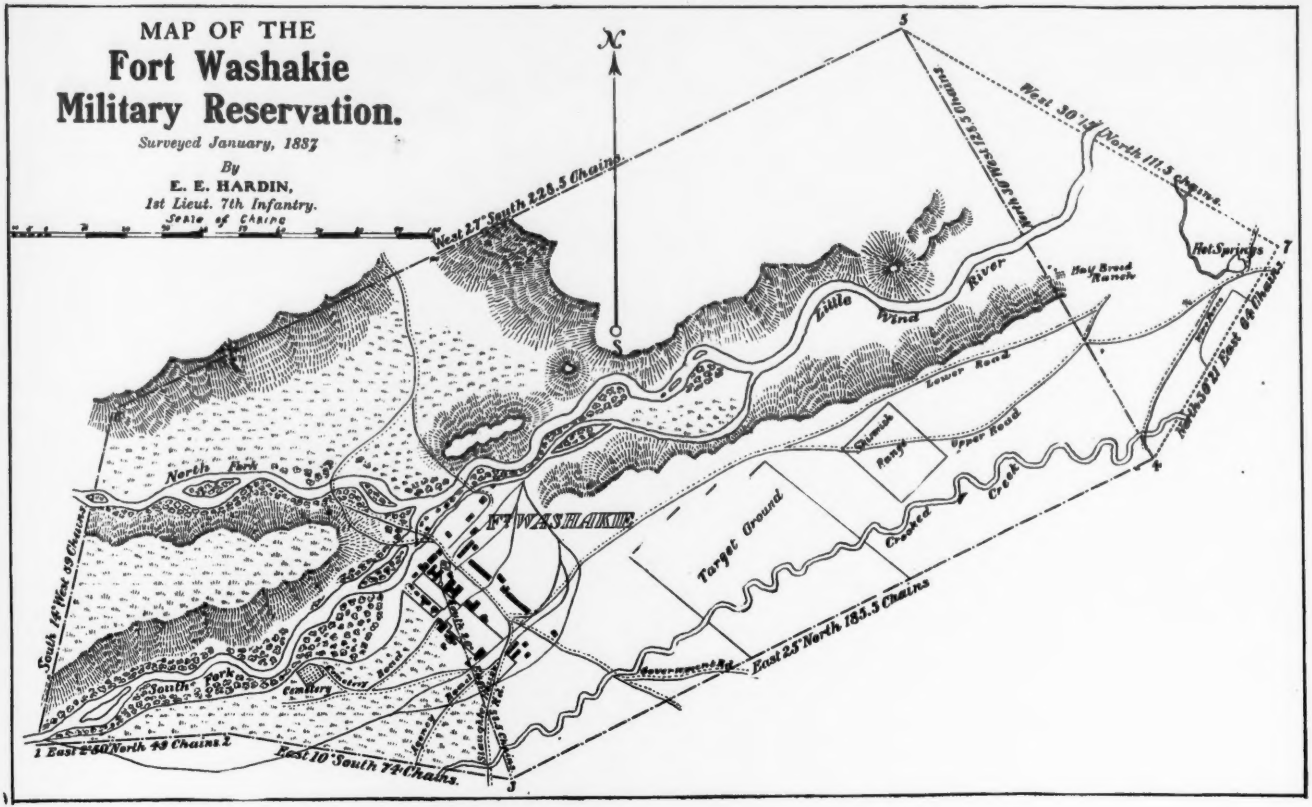
On each half-deck should be a sick-stall, 8 feet by 8 feet, with quantities of bedding and well-padded sides. If the animal can lie down and has plenty of bedding, the motion of the vessel will disturb him but little. If he cannot lie down, then the sick-stall is fitted with side-rails, and he is tied in his sling. Each hatch is provided with an animal-box connected with the steam capstan, so an animal, if very nervous or suffering from exhaustion in the hold, can be transferred to the main deck or *vice versa*. Change from one deck to another seems to be beneficial in nearly all cases of nervous tension.

A transport for carrying animals should be from eight to ten thousand tons, between 50 feet and 60 feet beam, fitted with rolling chocks, and every appliance for making her steady on the seas. The one object in construction should be to carry the animals with the greatest possible comfort. Every transport I saw was fitted up with the one idea to carry as many animals as possible, or, rather, to place in the ship as many stalls as possible, and to report that such and such a vessel has accommodations for so many animals; the greater the number of stalls the greater the triumph. I saw stalls built over the shrouds, capstan heads and the ship's cleats, where an animal could not live a day in even moderate weather. Many were built in impossible places, where the animal could not be led.

Upon arrival at Manila, an inspector-general of the regular corps came aboard, and I explained in detail all the defects of the vessel,

and took nearly two hours in pointing them out; besides having submitted a complete report with recommendations as above stated. In his report he summed up the entire matter by saying: "The facilities for cleaning the stalls were not good, and they were too short and too wide." I had pointed out where 108 stalls had been rebuilt at sea, and with some few changes could be made good, but such a little detail was not even worthy of mention.

No one should be permitted to superintend the fitting up of a transport who has not had experience in carrying such a cargo as the vessel is to carry, and the more experience he has had the better; and no one should be permitted to inspect such a vessel, with a view to making recommendations in equipment, unless he has had like experience.


MAP OF THE
Fort Washakie
Military Reservation.
Surveyed January, 1887
By
E. E. HARDIN,
1st Lieut. 7th Infantry.
Scale of Chains
West 27° South 226.5 Chains
South 30° West 128.5 Chains
West 30° North 111.5 Chains
North 30° East 69 Chains
Little Wind River
Hay Bread Ranch
Hot Springs
Lower Road
Upper Road
Skirmish Range
Target Ground
Crooked Creek
North Fork
South Fork
FT WASHAKIE
Cemetery
Quarters
Barracks
Guard House
Hospital
Commissary
Quarters
Quarters
Quarters

FORT WASHAKIE, WYOMING.

8/31/11

FORT WASHAKIE, Wyo., was established in 1871 by Capt. ROBERT A. TORREY, Thirteenth Infantry, with a view to protecting the Shoshone Indian Agency, which is about a mile distant.

It is the most remote station in the United States, being one hundred and forty-seven miles from Rawlins on the Union Pacific Railway, which makes the supply of the post somewhat difficult, and

FORT WASHAKIE, WYO. SHOSHONE INDIAN AGENCY IN THE DISTANCE.

freight consignments in winter have been known to be as long as eight weeks in reaching the post from the railroad. Daily stage thirty-three hours from railroad.

There are barracks here for three small organizations (two companies of infantry and one troop), but only one organization (a troop) having been stationed here for some years, unused buildings have not

BARRACKS AT FORT WASHAKIE, WYO.

been kept thoroughly in repair; so that it may properly now be called a one-troop post.

All the buildings are one story, built of *adobe,* stone and logs. Stables for one hundred horses and thirty mules. We have an excellent riding-hall in the open, good target range and facilities for troop field practice; good pasture enclosed by three miles of fence, good garden.

RIDING SCHOOL AT FORT WASHAKIE, WYO.

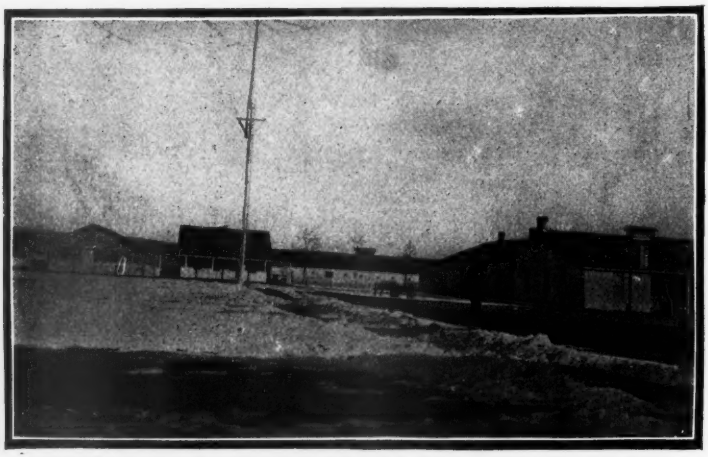
THROWING HORSES—TROOP "E," FIRST CAVALRY, FORT WASHAKIE, WYO.

VIEW, FORT WASHAKIE, WYO

POST EXCHANGE, FORT WASHAKIE, WYO.

About two and one-third miles east of the post is a large hot spring, with bathing-pool about sixty yards in diameter. Bath-houses have been constructed here for both officers and men.

A tar spring on the reservation supplies a mixture of asphaltum and petroleum, which has been used to a limited extent for walks and for roofing paint.



ADJUTANT'S OFFICE, QUARTERMASTER'S STABLES, AND POST EXCHANGE, FORT WASHAKIE, WYO.

The reservation is about a mile wide and two miles long. The nearest town is Lander, Wyo.; sixteen miles distant, population 1,000.

Water supply excellent, the water being pumped from Little Wind River.

The post is supplied with a steam saw-mill, planer, etc. The fuel used is mainly soft coal, with a limited supply of wood.

There is no sewer system at the post, cesspools being dug for the purpose of carrying off waste.

The post is at present (March, 1902) garrisoned by Troop "E," First Cavalry.

THE AUTOMATIC SMALL ARM.

By First Lieutenant AUBREY LIPPINCOTT, Fourteenth U. S. Cavalry.

TO students of the art of war the introduction of gunpowder as a propelling force in engines of war stands out the most prominent event in the evolution of that science. It was, indeed, a red-letter day on History's calendar. "The art of war, which until now had found its advantage only in superior numbers, or in the great personal strength and fiery courage of the warrior, became a science; and the most skillful usually carried away the victory from the merely brave."

It would be interesting to trace in detail the development in fire-arms, beginning with the bombards—made in France as early as 1328—and ending with the most recent productions; but such is quite beyond the scope of this paper. Confining ourselves, therefore, to the last fifty years, it will be remembered that within that period the muzzle-loader has been replaced by the single-shot breech-loader, which in turn has given way to the magazine rifle; and to-day many of the European powers are considering the advisability of adopting an automatic magazine rifle.

Before taking up the argument—*pro* and *con*—of the automatic small arm, an effort will be made to describe briefly two weapons illustrative of the mechanical systems commonly employed by inventors of this type of rifle. They are:

1st. Those in which the powder gases from the barrel (which in this type is immovable) actuate the bolt mechanism.

2d. Those in which the recoil furnishes the energy necessary to operate the bolt; the barrel in this class being movable.

Manufacturers of the last-named type contend that there is a disadvantage in using a portion of the powder gases to obtain automatic action, due to the want of ballistic efficiency, which in turn is due partly to the danger of losing powerful powder charges, and partly to the escape of gases. The recent tests, however, of the Mannlicher automatic rifle seem to quite refute these statements.

In the barrel of this gun (*i. e.*, the Mannlicher) is bored a small vent, through which a portion of the powder gases enter a gas cylinder fastened beneath the barrel by means of a screw. In this cylinder

moves a piston which engages the bolt. When, upon firing, the bullet passes the vent, "the piston is forced back, the lug of its arm engages in the cam of the recess in the bolt and forces the latter to turn to the left, or to unlock. Through the shock of the lug against the end of the recess in the bolt the latter also receives the impulse necessary for its further rearward movement. . . . . while the piston, having completed its travel, is driven forward again by its coil spring." From the momentum it has already received, the bolt completes its rearward journey, cocking the piece and throwing out the empty shell as it does so. A recuperating spring now sends the bolt home, and by its own spring it is turned to the left and locked. By this forward movement a new shell is carried into the chamber. It will thus be seen that the gas piston has only to unlock and start the bolt to the rear, after which it is returned forward by its coil spring. For the greater part of its rearward movement the bolt is therefore independent of the gas mechanism, and can, if the vent become choked, be operated by hand, as with the non-automatic rifle. Or, if so desired, the vent can be closed and the weapon used as an ordinary magazine rifle.

As a typical example of guns of the second type (*i. e.*, those in which the energy necessary to operate the bolt mechanism is furnished by the recoil), the Mauser may be taken.

When this gun is fired, the pressure of the base of the cartridge on the breech-block starts the latter backward, carrying, as it does so, the barrel along with it. This movement cocks the piece and tightens the barrel recuperating spring. The connection of the breech-block and barrel now ceases, the block continuing its travel alone. This extracts the empty shell and tightens its recuperating spring. Having completed this rearward movement, the block is sent forward by the expansion of its spring, a new shell being pushed into the chamber by the operation. The barrel recuperating spring then expands, bringing it into the firing position.

Having thus briefly described two rifles characteristic of the mechanical systems employed to obtain automatic action, the advantages and disadvantages of this type of small arm as compared with the non-automatic repeating rifle may be considered, and this comparison must involve the following points:

Rapidity of fire,
Accuracy of fire,
Durability,
Supply of ammunition.

RAPIDITY OF FIRE.

As to rapidity of fire, the advantage is, of course, entirely with the automatic arm. With these rifles an average of from 35 to 45 *aimed* shots per minute can easily be maintained. Three hundred men armed with rifles of the type recently introduced by the Danish Automatic Rifle Company could, it is claimed, fire in a given time as many rounds as 2,500 men armed with ordinary magazine weapons.

ACCURACY OF FIRE.

With the non-automatic magazine rifle the firer must needs entirely destroy his aim in working the bolt; indeed, he will usually take the piece from his shoulder for this operation. This disadvantageous factor is quite eliminated when using the automatic arm; for, assuming that the soldier has taken the prone position, to continue firing he need only pull the trigger, keeping the piece constantly trained on the objective. The fact that much of the recoil is taken up by the recuperating springs renders this maintenance of aim still easier.

The difficulty met with in the Philippines in firing rapidly yet accurately with our present arm has recently prompted the promulgation of an order on the subject, a paragraph of which follows:

"In service in these islands you are called upon to encounter an enemy unusual in civilized warfare, and whether he rushes your position in daylight or under cover of night, with bolos and daggers, or fires upon you from places more or less distant, if you are able to fire your pieces accurately and rapidly, your casualties will be very few, and the fact that you are able to do this is certain in your ranks to make a nervous man collected, and a brave man more courageous. In other words, the act of taking a correct aim and pulling the trigger without deranging the piece should be made as nearly as possible mechanical. . . . . ." The effect of rapid fire on the *morale* of troops has often been noted by military writers, and has given rise to the English expression, "Shooting up one's pluck."

DURABILITY.

In comparing durability, the automatic arm does not suffer. The methods of obtaining automatic action are comparatively simple, and the workmanship of the foreign-made guns thus far produced is of the highest order. The following extract from the proceedings of a board of officers convened at Springfield Armory, Mass., on December 23, 1897, to test the Borchardt automatic pistol-carbine, will in part substantiate this statement:

"*Endurance.*—997 rounds were fired in 2 hours and 27 minutes. 1,000 rounds more were fired in 2 hours and 9 minutes, without inter-

ruption." The firing of these 1,997 rounds was done without cleaning or oiling. The pistol was then subjected to the usual dust and rust tests, and demonstrated its ability to withstand each.

SUPPLY OF AMMUNITION.

But though the automatic arm is intrinsically equal and in many respects superior to the non-automatic magazine rifle, it is a question whether it would be the ideal weapon for the firing line. With an extended order formation it will be an extremely difficult matter to prevent the skirmishers from getting out of hand and wasting ammunition in a wild and ineffective fire—even when using the present magazine arm. With an automatic rifle this waste would be even greater, unless perfect fire discipline could be maintained. The problem of supplying ammunition on the battlefield has not, as yet, been satisfactorily solved to meet the demands of our ordinary magazine guns, not to mention automatic arms. But though yet unsolved, it by no means follows that it is incapable of solution, and the day must come —and is probably not far distant—when this great obstacle will be, to a large extent, overcome. Then that nation which has the most rapid fire arm will have an incomparable advantage over its less progressive enemies. Even under existing conditions, it is easy to conceive the superiority an army equipped with an automatic arm would enjoy when holding a position, meeting a charge—either cavalry or infantry—paving the way for a cavalry attack, or advancing on an intrenched position by rushes. If supplied with a weapon of the Mannlicher type and automatic action were not desired, only a second's time would be required to convert the arms into non-automatic weapons.

As to the automatic pistol, the tests now being made will determine its suitability for military purposes. It has already demonstrated itself to be the weapon *par excellence* for all officers.

Therefore, inasmuch as these weapons have already reached an advanced stage in their development, and because other Governments are losing no time and sparing no efforts to determine their fitness for war purposes, we likewise should be giving the matter some attention.

Among the foreign Governments at present experimenting with this most recent innovation in firearms may be mentioned Austria, with the Mannlicher; Germany, with the Mauser; Denmark, with a new rifle fed from a magazine holding from one to twenty-five rounds; Italy, with the mitrailleuse of the Italian CEI-RIGOTTI; and Sweden, with a new arm invented by Lieutenant FRIBERG.

From the degree of perfection already attained in this type of small arm, as well as from the fact that many European powers are experimenting with and considering the advisability of their adoption, it is apparent that the automatic weapon is no longer to be regarded as in the embryo. For this reason we should be giving the matter some attention.

Since Waterloo—indeed, we might say since the introduction of gunpowder—military development has depended mainly upon the improvements of firearms. To this NAPOLEON contributed by employing the best mechanics he could find, among them PAULY and DREYSE, who constructed a breech-loader as early as 1812. That great military genius saw the immense advantage an army supplied with a superior arm would have over an enemy superior in numbers but inferior in armament, and spared no efforts to obtain a transcendency over his enemies in this as in all things else. Unless we do likewise, will we not err?

THE REVOLVER OR PISTOL BEST SUITED TO CAVALRY.

By Captain THOMAS Q. DONALDSON, Jr., Eighth U. S. Cavalry.

EVER since the invention of firearms made the armor of the mounted man useless as a protection and his battle-axe ineffective as an offensive weapon, there has been a constant effort to produce a firearm which could be readily manipulated and fired with one hand, and which would have enough power to place the mounted man at least on an equality with his dismounted opponent. The name "pistol" was given to this weapon.

There seems to be some doubt as to the exact time when it was invented, but Lieut.-Col. G. V. Fosbery, V. C., late Bengal Staff Corps, in an article in the *Journal of the Royal United Service Institution*, "On Pistols," has this to say on the subject: "The pistol was produced in its earliest form somewhere between the years 1446, when the hand gun is known to have been made in two sizes, and 1509, when the match lock was first adapted to portable firearms. Some say that it was invented by an Italian named Camielli Vitelli, made at Pistoia, and called after that city; others, again, assert that, on the contrary, it was made at Perugia, and so named from *pistello* (a pommel); while a third authority says it was so called from the pistol, which coin just fitted its caliber. Anyhow, it is certain that the hand guns, large and small, were succeeded by the hackbut and demihague, and these, again, by the harquebus and pistol, and it seems more probable that it was made to meet the necessity of having something lighter and more manageable than the match-lock proper, which was cumbrous and unwieldy, required a rest to support it when in use and oftentimes two men—a firearm, moreover, which could be used by the mounted man against the foot soldier (who now began to carry the hand gun)."

Shooting from horseback with the primitive form of this weapon must have furnished plenty of excitement for both man and beast, and must have required a degree of skill on the part of the trooper that would throw into the shade anything now required of the mounted pistol shot. One authority says: "Until the introduction of the wheel-lock, a coil of burning match must have been an intolerable por-

tion of a horseman's equipage; and even when this was abolished, imagine the processes he had to go through. CRUSOL, in 1632, as quoted by Lord DILLON, says they were sixteen in number, and when, lastly, he pulled the trigger, the chances must have been even whether he got a snap shot at his enemy or had a miss fire."

The above author mentions quite a number of curious inventions in which the pistol was combined with other weapons—such as a battle-axe with a hinged edge, inclosing a short set of barrels which could be fired with one blow of the axe; double- and four-barreled pistols, combined with swords, etc.—all designed to meet the necessity of quick action, as it was out of the question to fire more than one shot at the charge and it was imperative to make the one effort effective.

The development of the single-barreled pistol was comparatively rapid, and it reached its highest type, under the old flint-lock system, in the dueling pistol, with which some very creditable feats, up to fifty yards, were performed.

The forerunner of the present revolver, which was at first made with a set of barrels revolving around a spindle, and finally with a single barrel with a cylinder containing a set of chambers, which was revolved on a spindle until the chambers successively came into line with the barrel, was quite an early invention; but very little use could be made of the system until the percussion cap was devised and made it possible to fire one barrel at a time, instead of having *all* the chambers discharged every time the trigger was pulled.

It seems that the pistol was first prescribed as a part of the equipment of the British soldier in 1544, and (with the exception of the reign of Henry VIII.) has been carried by him ever since.

The revolver, as an effective weapon, dates from 1830, when Col. SAM COLT produced his model. In 1835 he greatly improved it and gave it practically the same form that his weapon now has and with which we are all familiar. Even now, however, there was little sale for the revolver, and COLT, having spent all his money in inventions and the attempt to find a market, was forced to suspend its manufacture, and it was not until General TAYLOR, during the Mexican War, requested the War Department to send him one thousand of these weapons, that he was again able to take up the subject. From this time on, however, the revolver came into general use, not only in the United States, but in Europe as well, and the name of COLT is now associated with "revolver" wherever firearms are used.

What a terrible weapon the revolver becomes in skilled hands is shown by the feats performed with it by our Western plainsmen and by its record during the Civil War.

Colonel HALL, of the Adjutant-General's Department, has this to say of one occurrence during that war:

"I know of but one instance where its [the revolver's] use by a mounted organization has ever been perfected, but the results in this are more than sufficient to establish its supremacy as a cavalry weapon were we entirely devoid of individual cases in which a high degree of skill had been attained. The organization to which I refer was a remnant of QUANTRELL'S command under a leader named BILL ANDERSON (claiming to belong to the Confederate Army), who infested the northern part of Missouri during the last year of the War of the Rebellion. These men were armed with three or four revolvers each, and, at the time to which I refer, numbered about fifty. They attacked, upon an open prairie, a command of our mounted troopers, whose numbers I have heard variously estimated at from 200 to 250. ANDERSON'S command lost but five or six men, and only eight or ten of the Federal troopers escaped with their lives. The others were laid out over the prairie for a distance of four miles, and were killed with revolvers. I have been informed, and I believe credibly, by men who belonged to ANDERSON'S command, that mounted pistol practice was their principal occupation."

It is evident, however, in this case, that the Federal troopers were not properly handled. Had they charged their opponents instead of dismounting and waiting to be attacked, the result of the encounter would probably have been different. Sufficient evidence, however, is on hand, not counting this instance, to show that some form of pistol is certain to remain a part of the cavalryman's equipment, whatever may be the fate of the saber.

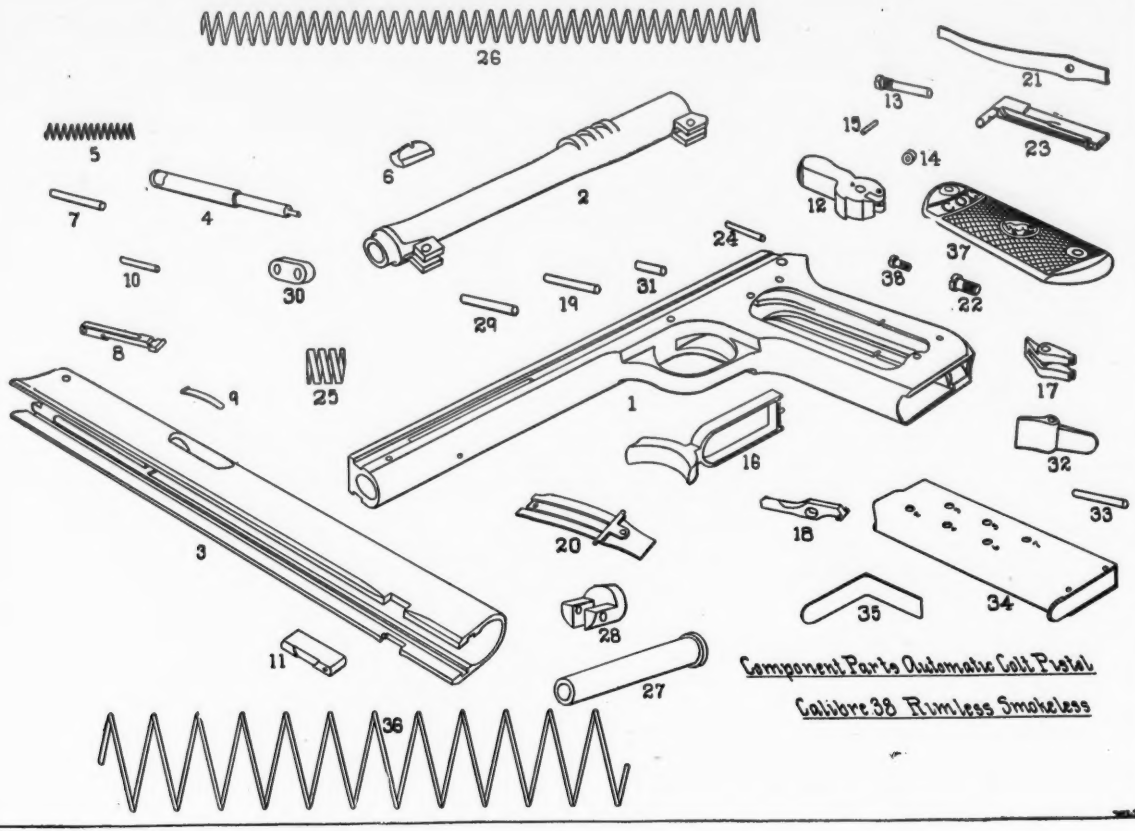
The important question, then, to answer is: What is the pistol best adapted to the Cavalry service? This is the problem that has occupied the attention of cavalry officers for a long time, as a glance at the files of the CAVALRY JOURNAL and the *Journal of the Military Service Institution* will show. It is of vital importance to the Cavalry, for all indications seem to point to the early abandonment of the saber as far as field service is concerned; and hence the necessity for the most effective pistol that can be devised.

Whatever the weapon adopted, it must possess the following qualifications:

1. It must fire every time the trigger is pulled with the intention of having it do so.

2. Its mechanism must be serviceable under all the conditions in which it may be used.

Model 1902 - Seven Shot



Component Parts Automatic Colt Pistol

Calibre 38 Rimless Smokeless

3. It must fire a bullet that will produce a maximum effect at short range—say twenty or twenty-five yards—and stop man or animal instantly wherever struck.

4. It must be accurate and have a moderate trigger-pull.

5. It should admit of very rapid fire and carry at least six cartridges.

6. It must be capable of being reloaded easily and rapidly *on horseback*.

7. It must be sufficiently light to be handled quickly.

In the first part of this paper two systems of hand firearms have been touched upon—the single-barrelled pistol and the revolver; but there remains to be considered a third system, which has been developed within the past ten or fifteen years—that of the automatic or self-loading pistol.

The single-barreled pistol as a cavalry weapon is obsolete and, from present indications, the revolver is soon to become so.

Our present service weapon, the Colt .38 caliber double-action revolver, is a fair sample of the best weapons of this system, and we are all familiar with its defects. One season's mounted target practice with it is enough to make a man wish for a better weapon—one that does *not occasionally* miss fire and that does not require *all* of his strength to fire it. One of our service revolvers, which I selected at random from a lot numbering over a hundred, had a trigger-pull when used with single action of 13½ pounds, and with double action of 18½ pounds. Both of these pulls are too heavy to permit of rapid and accurate shooting. Leaving aside the questions of caliber and heavy trigger-pull, which could be adjusted, the revolver has two defects which, so far, have not been (and probably never will be) eliminated. These defects are the escape of the powder gases between the cylinder and the barrel, and the liability of the cartridge shell, after firing, to jam against the breech and prevent the cylinder from revolving.

It is believed that the mechanism of the revolver has now become as perfect as it is possible to make it for this class of weapons.

In August of 1899, a board of ordnance officers was convened at the Springfield Armory for the consideration of the following points:

"1. The caliber of the revolvers.

"2. Whether or not a suitable revolver for the United States Cavalry service should have side action.

"3. Whether or not it is desirable that the revolver should have double action.

"4. It is desired that the board should also consider the subject of repeating pistols; and report whether they are as desirable for the United States Cavalry service as the revolver; and if adopted, whether they should displace the carbine, and the latter be discarded."

The board, after an exhaustive test of two revolvers, one Colt and one Smith & Wesson, came to the following conclusions:

"1. The caliber .38 should be retained.

"2. The side action is desirable.

"3. The double action feature should be retained.

"4. The automatic pistols are not as yet sufficiently developed to warrant their adoption in place of the revolver. It should not displace the carbine."

The board found both revolvers submitted serviceable weapons, and recommended that they be adopted, adding: "Actual trial in the field is, however, the final test of the suitability of a revolver for army use, and the board are therefore of the opinion that steps should be taken to have such a test made."

In April of 1900 another board met at the same arsenal, for the purpose of considering the subject of automatic pistols, and after testing the Mauser, Mannlicher and Colt automatic pistols, summarized as follows:

"*Mauser Pistol.*—This pistol in general works well, and the parts are well made and durable. It can be easily and quickly loaded, and it is capable of a rapid rate of fire. It has a high initial velocity, and is more accurate than the revolver.

"It has the following disadvantages:

"It is large and cumbersome.

"The construction is complicated and the pistol is expensive to make.

"It would be more difficult to care for than a revolver.

"Its caliber is small (7.63 mm.=.30 inch), and the bullet is extremely light (85 grains).

"It is of foreign manufacture.

"In regard to the value of this arm as a pistol-carbine, this board agrees with the opinion of the board of officers convened by Special Orders 260, Headquarters of the Army, A. G. O., November 3, 1898, which was as follows:

" 'The board believes it would be inexpedient to allow it to displace the carbine, the latter being a long-range weapon of precision for dismounted action, while the former (referring to the automatic pistol), with its shorter barrel and attachable stock, is, in the opinion of the

board, better adapted for use as a short-range weapon for rapid use while mounted.'

"The board does not recommend the adoption of this pistol for service.

"*Mannlicher Pistol.*—While this pistol is very simple in construction, the operation of loading is very tedious and slow, and it would be almost impossible for a man to load it while on horseback. The muscular exertion required to fire it is practically the same as for an ordinary double-action revolver, while the rate of fire is much slower.

Model 1902 Seven Shot

"The board are of the opinion that this pistol is not a suitable arm for the United States service.

"*Colt Automatic Pistol.*—The test to which this pistol was subjected was in every way more severe than that to which revolvers have been heretofore subjected, and the endurance of this pistol appears to be greater than that of the service revolver.

"It possesses further advantages, as follows:

"Very simple construction.

"It is easy to operate.

"It is not liable to get out of order.

"It is capable of a very high rate of fire.

"It can be conveniently loaded with either hand.

"It gives a high initial velocity and flat trajectory.

"It is more accurate than a revolver. The plant for its manufacture has been completed, and in case of necessity the pistols could be obtained promptly and in quantities.

"It has, in common with the other automatic pistols tested, the disadvantage of a light bullet, and therefore lacks the 'stopping power' of the revolver.

"By reducing the velocity, however, the weight of the bullet can be increased accordingly; or, if desired, the caliber can also be increased; and the manufacturers state they are prepared to manufacture an automatic pistol of caliber 0.41 inch, which is in all other respects identical with the one tested.

"In the opinion of the board, this pistol is a suitable arm for use in the United States service, and it possesses numerous advantages over the revolver.

"Before adoption, however, the board recommends that a number of these pistols be purchased for actual trial in the field."

It is seen from this report that a board of *ordnance officers* believed that an automatic pistol had been produced which was superior to the service revolver. A number of the Colt automatic pistols were issued to the cavalry in the Philippines for trial, and while I have not had an opportunity of learning what the results of the trial were, I have obtained the opinion of one officer who tested this weapon in the Philippines, and from what he says, he also thinks the Colt is superior to the revolver. Captain W. C. BROWN, First Cavalry, is the officer referred to, and I take the liberty of quoting him as follows:

"I regard it [Colt automatic] as far superior to the regulation revolver; in fact, I think almost any automatic pistol is preferable to our revolver for most uses to which such an arm will be put. In jungle fighting, particularly, one must shoot quick, and if you can for a short space of time put in a perfect stream of bullets, so much the better. The Colt automatic is a safer weapon to use than our regulation arm, and it can be loaded easily on a horse prancing about under fire. So much for its advantages.

"I have not found it as accurate as the regulation revolver, and am under the impression that the recoil throws the barrel off at the instant of discharge."

Another officer, Captain F. S. FOLTZ, Second Cavalry, after an exhaustive test, in Cuba, of the Colt automatic pistol in comparison with the Mauser and service revolver, reported as follows:

"Experiments were directed to manipulation, as the accuracy and power of the arm is above question.

"My experience with the Colt extends to some 400 shots that I have fired or seen fired from four pistols, and with the Mauser, to 500, from three pistols.

"The Colt is more compact and three inches shorter than the Mauser (for the same length of useful barrel). * * * The Colt is also lighter than a Mauser having the same length of useful barrel.

"The caliber of the Colt .38 is better than that of the Mauser .30; it is presumed, however, that whatever pistol is adopted will be made of the caliber selected.

" * * * * The side ejection of the Colt is not liked as well as the top ejection of the Mauser, as the flying shell may strike neighboring horses or men.

"The Colt seems to present more openings for sand and rust than the Mauser, which at rest is as tight as a box. * * * The parts of both pistols are apparently sufficiently large and strong and very much more substantial than those of the revolver.

"The Mauser can be dismounted without tools, while the Colt requires the use of drifts beyond the first operation of removing the slides or barrel casing.

"The Mauser barrel can be cleaned and inspected after firing without dismounting; while with the Colt the slide casing must be removed with a pin, and the small lock (?) must be carefully disposed of.

"When the last shot has been fired from the Colt, there is no indication of the fact; the shooter is too much occupied to keep an accurate count of his shots, and almost *invariably snaps the hammer on an empty chamber.* The chamber of the Mauser remains open when the pistol is emptied.

" * * * The rapidity of fire of either pistol is limited only by the quickness of the trigger finger.

" * * * Taking all things into consideration, the Colt automatic is a great improvement over the revolver; but while it has the advantage of the Mauser in compactness, it is very inferior to it in the other more important points memtioned; notably the following:

"1st. It is slow in recharging, and cannot claim to be always loaded.'

"2d. The user must remember to work the action by hand after loading; the arm does not show whether this has been done or not, and *the result at practice was many snaps on an empty chamber.*

"3d. The user must remember to count the shots he fires; the pistol does not show when it is empty. At practice, *the snap on the empty chamber after exhausting the magazine was the rule, and not the exception.*

"In view of the above considerations, I have the honor to respectfully recommend that no more Colt automatic pistols be supplied, but that the Mauser be temporarily adopted, while some officer is afforded facilities for working out such a combination of Mauser and Colt as

HALF SIZE.

I have indicated. This weapon should have only a shot-gun range, and should throw a ball of at least .45, better .50."

Within the past three months a new automatic pistol has been sent to the Cavalry for trial—the Borchardt-Luger pistol. This weapon has been adopted by the Swiss military authorities after thorough tests in competition with the revolver and other automatic pistols—the results of these tests being as follows, in their order of merit: 1, Borchardt-Luger; 2, Roth; 3, Mannlicher; 4, Bergmann; 5, Mauser.

This pistol has not been in the hands of our troops long enough to be thoroughly tested; but from my own tests with it, and from conversations with other officers who have tried it to a limited extent, it seems to possess the following disadvantages:

1. The extractor is too delicate, being easily broken.

2. The breech-block does not always close tightly after firing, requiring the use of the hand to make it do so.

3. There sometimes is difficulty in getting the first cartridge into the chamber from the magazine, and there is nothing to *indicate that* fact when the cartridge does go in.

4. The magazine slips in easily and quickly, but is too valuable to throw away, and time would be lost in attempting to save it after its cartridges were exhausted.

It is a beautifully made weapon, and very powerful and accurate; but it has, in common with the other automatic pistols, a smaller caliber and a light bullet.

A few days ago I saw in one of the service journals a notice of a new automatic pistol, called the "Mars," invented by a British officer, which is made in three calibers, the largest being .45, and giving its bullet a velocity of about 1500 feet. If this pistol is correctly described, its caliber and bullet seem to fill the bill.

STOPPING EFFECT.

This is what any weapon adopted must instantly produce, either by shooting a large heavy ball or by shooting a ball that will "mushroom" on impact, or by combining these two methods.

A short time ago, while testing the Luger pistol on beef cattle to observe the effect of its bullet on live bone and tissue, I also had the opportunity of seeing the effect of the old .45 Colt fired at short range, and was surprised to learn that the stopping power of the latter, at least when used on large animals, was over-estimated. I fired at five steers with the Luger, shooting directly at their foreheads at a distance of not over ten feet, and, although all were struck within two inches of the brain, not one fell or showed evidence of any shock until the brain was actually touched. An old Indian standing near me, thinking my weapon was "no good," opened up with his .45 cannon and fired two shots at a large steer before he could be prevented from doing so. The two shots struck the steer squarely in the forehead near the brain, but did not cause him to fall or to appear seriously inconvenienced. After this steer was killed, we examined his head, and found six bullet-holes close together through the skull—four Luger and two .45 Colt; one Luger bullet through the brain having killed him. If this animal had been charging, none of the bullets except the one through the brain would have stopped him.

CALIBER.

Cavalry officers seem to be agreed on this subject, and almost without exception advocate a large caliber—not less than .45. If we can get the large caliber and still have the other necessary conditions, so much the better—even if the pistol has to be made a good deal heav-

ier to secure it. Whatever other advantages the pistol may have, it *must* possess the two necessary qualities of "sure fire" and the power to stop any living animal fired at.

From the tests of the automatic pistols in comparison with the revolver which I have referred to, it is evident that the former system has very nearly solved our problem, and it is only a short time until it will completely do so.

After the weapon is adopted, every trooper in the Cavalry service should be drilled in its use mounted until he has attained the greatest skill with it that he is capable of. No perfunctory practice will satisfy the requirements, and no weapon, no matter how perfect, will be of any service unless the men know how to use it to the best advantage.

MOLASSES AS A FOOD FOR ARMY HORSES.

By GERALD E. GRIFFIN, Veterinarian, U. S. Artillery Corps.

WHILE serving with the Fifth Cavalry in Porto Rico, 1898 to 1902, it was observed that the natives used a considerable quantity of molasses in feeding their ponies. On inquiring into the reason for this, we were informed that the corn of the country is small, hard, scarce and expensive; oats have to be imported; hay is unknown, it being practically impossible to cure grass in a country where the rainfall is so great and frequent as in Porto Rico. Besides, vegetation flourishes throughout the year, and grass in large quantities is always obtainable, although most of it is of a coarse variety and contains 85 per cent of water, and little else.

The grass for feed is cut early in the morning, made into bundles weighing ten to fifteen pounds, transported on ox-carts to the neighboring towns, and there bought at a small cost by the horse-owner. The horse is allowed an unlimited supply of this grass, which is cut or chopped into short lengths. In addition to this, where molasses is obtainable (and it is very plentiful in this sugar-raising country) and cheap enough, it is added to the drinking-water and the animal allowed to partake of the mixture in large quantities. All the ponies do good work on this forage ration, and endure the harsh usage and brutal abuse to which they are subject by the native Porto Ricans and the resident Spaniards, who are seemingly devoid of mercy where horse-flesh is concerned.

The question suggested itself, "Why not feed army animals in like manner?"

Through the courtesy of Colonel J. Clem, Chief Quartermaster of the then Department of Porto Rico, a money allowance of $80 was placed at our disposal for the purchase of molasses for purposes of experimenting with it as a food for horses.

Six troop horses and two private horses were selected for the experiment, which was inaugurated on the 1st day of January, and continued until May 31, 1902.

In carrying out the experiment, I was ably assisted by a detail of enlisted men in charge of a farrier.

On the appointed day the eight horses were weighed, pulse, temperature, respiration, secretions, etc., noted and recorded; also the condition of the teeth and general health, all of which were normal.

Commencing with the morning feed on January the first, the oats ration was gradually diminished, and grass substituted at the rate of 3 pounds of grass for 1 of oats. Commencing on the 4th, the hay ration was gradually decreased, and its place supplied by grass at the rate of 2 pounds of grass for 1 of hay.

On the 6th, in addition to the grass, now amounting to 21 pounds a day (chopped), there was added, mixed therewith, 3 pounds of molasses. The hay and oats were eaten eagerly, also the fresh grass, but that mixed with the molasses was absolutely refused, except by horse No. 2, who was fond of candy and sugar. He appeared to have trouble in mastication, and it was concluded that the molasses was not sufficiently diluted. At the next feed 25 per cent of water was added to the molasses, when four of the other horses commenced to eat sparingly. By the 10th of the month all of the horses were eating 35 pounds of grass and 14 pounds of molasses daily, and received no other food whatsoever.

From the 7th to the 18th each horse lost in weight from 25 pounds in the case of No. 2 to 36 pounds in the case of No. 5. Contrary to expectations, no relaxation of the bowels was noticed. In fact, at a later period bran had to be fed to overcome a partially constipated condition in all of the subjects. The urine was clear and secreted in greater quantity than usual, and on test for sugar, no reaction could be observed.

During this time each animal was doing the usual routine work of the garrison—drills, parades, scouts, horse exercise and patrols, amounting in all to about five or six miles per day.

On the morning of the 17th it was decided to give the animals a regular amount of work, of twelve miles daily, saddle packed with soldiers' field kit, or its equivalent, which with the man made an average of 203 pounds.

Animals were watered at 6 A. M., fed 15 pounds of grass and 7 pounds of molasses; at 7:30 A. M. they were all saddled, and the detachment under my direction (riding No. 2) proceeded as follows: one mile walk, one mile regulation trot, one mile walk, one mile slow gallop, two miles walk, one mile fast gallop, one mile trot, two miles walk, and sometimes an additional two miles walk. Returning to stables not earlier than 9:30 A. M., we unsaddled and placed the horses on the picket line. Water was offered at all of the numerous streams

crossing the line of march while *en route,* but was refused except on rare occasions, and then partaken of only by the oldest animal in the detachment, No. 6, fifteen years old. Water was offered at noon, but little partaken of. At 4:30 P. M., 20 pounds of grass and 7 pounds of molasses were fed, water having been given immediately before this. Salt was offered on Tuesdays and Saturdays, and about 3 ounces was used each week by each animal. The molasses was diluted with 25 per cent of water and mixed with the chopped grass as far as possible; where all could not be thus mixed, it was dissolved in water and offered as a drink.

Commencing with January 20th, all of the horses commenced to pick up, and by the 5th of February all of them had arrived at their original weight, and in some cases, notably No. 2, surpassed it. No. 6, the old horse, regained his weight more slowly. By the end of February all of the horses had increased in weight over the original from 35 pounds in the case of No. 6 to 68 pounds in the case of No. 2. This increase was maintained or varied very little throughout the experiment, except in the case of No. 6, the old horse, which slowly put on 52 pounds over the original weight. The work was continued daily, rain or shine, Sundays excepted, and in addition to this, we were glad to let the horses out to garrison riding parties and for drills and parades, provided this did not interfere with the regular work, and with the understanding that no food should be offered the horses while so absent from stables. All the horses were given a swim in the sea every Sunday afternoon for about half an hour, for the purpose of washing off any molasses adhering to the coat. Horses were groomed once a day; at evening "stables."

On April 18th, No. 3 stumbled on a round stone and strained one of the "back tendons" of the off fore, which necessitated his remaining in the stable for seven days; during which time he gained 12 pounds in weight.

In the evening of April 29th a barrel of fermenting molasses was delivered; on the morning of the 30th this molasses was fed at the regular time. As the customary monthly muster was to be held at seven o'clock, the usual work was postponed until later and all the horses turned out for this function. They behaved in a most scandalous manner, breaking up the alignment, mixing things at the reviewing point, and one of them very nearly "policed" the saddler sergeant, an expert horseman. Query: Had the fermenting molasses anything to do with this manifestation of mettle.

February the 5th it was noticed that the manure was becoming quite dry, and that the animals had difficulty in passing it. To correct

this, we fed a little bran mash on the 11th, which was eaten greedily; it had the desired effect, and had to be repeated on an average once every two weeks.

It was observed in Porto Rico that the young horses were the ones that were on sick-report much of the time, while horses of seven and over were seldom reported. The trouble was usually of a digestive nature, with its consequent "out of condition" scratches, grease, skin eruptions, swelled legs, "hoof rot," "hidebound," weakness and lameness, saddle abrasions and cincha sores, accompanied by the usual crop of boils, etc. Four of these cases were chronic sick-report horses, and could not be braced up by the application of the usual drugs except for a few days at a time. On February the 3d all of the four were suddenly deprived of their grain and hay and put on a daily ration of 6 pounds of molasses and 20 pounds of green grass. They refused the molasses for two days, but hunger is a good tonic, and on the morning of the 6th we were gratified to see that everything was cleaned up. The horses' teeth were in good condition. Strange to relate, these animals commenced to pick up immediately, and within ten days they improved so wonderfully that their riders failed to recognize them. These horses did their usual troop work, which was light. After living a month on this ration, they were as suddenly returned to the hay and oats ration.

They suffered with indigestion for several days upon returning to dry food, but otherwise the sudden change was not injurious. We were under the impression that we would certainly have some acute digestive disorder on the sudden change from dry to green food and molasses, but none appeared that could be observed. We were not surprised at the manifestation of indigestion upon changing back to dry food.

All of the horses using the molasses ration, including the four sick ones, improved in spirit, coat, condition, wind and flesh, and looked better than the other horses in the garrison. Remembering that they (the eight) accomplished considerable more work and under unfavorable conditions, and that they probably received less grooming, the results as observed are certainly astonishing.

On ending the experiment, the horses were gradually restored to their usual daily ration of 12 pounds of oats and 14 pounds of hay, which they ate greedily. This ration is too heavy in a tropical climate; the oats could with advantage be reduced 2 pounds and the hay 4.

We do not claim originality for the molasses ration, it having been in constant use on the island of Porto Rico from time immemorial.

Conclusion.—Army horses in the West Indies, when the regular ration is not obtainable, can be subsisted with advantage on grass and molasses (and salt), which are cheap and easily obtainable. The average price for the daily grass and molasses ration was about sixteen cents; that of the regular ration, not including transportation, about twenty-seven cents. The price of molasses depends upon the season, it being cheapest when the cane is being ground.

Thirty pounds of grass and from 13 to 15 pounds of molasses as a daily allowance is sufficient to maintain a cavalry or field artillery horse in good working condition in a climate similiar to that of Porto Rico.

On this ration animals appear to do more work; condition and coat improve; there is less tendency to perspiration; the wind is decidely improved, due probably to a less heavily loaded intestinal tract; urine is increased but slightly; bowels have a tendency to constipation, which is easily corrected by feeding a few pounds of bran mash at stated intervals.

Sudden changes from dry to the molasses ration is not at all injurious and does not derange the digestive apparatus. The change to the dry ration should be accomplished gradually, or serious consequences may arise.

Molasses attracts insects, notably flies and ants; it sticks to the animal's coat, besmears his face and breast, halter and halter strap, soils the clothing of the men and their equipment, and causes some trouble and delay in mixing with the fine-cut grass.

It is believed that molasses in small quantities could be used to advantage in the treatment of debilitated horses or those suffering with chronic indigestion and dyspepsia, when the coat is rough and the skin is harsh and tight.

It may not be amiss to remark here that horses below the age of seven are an abomination in a campaign in the tropics; they are not matured and are unable to resist disease. But the worst thing they have to contend with is our system of feeding and watering. In the morning we feed and then water; in the evening we water first and then feed, and at this time all the hay for the ensuing twenty-four hours is placed before the animal. From feeding-time in the morning, generally 5:30 A. M., until feeding-time in the evening, generally 4:30 P. M., the horse must fast, although it is well known that he has the smallest stomach of any animal in comparision with weight.

This is the reason why remounts feel and look "like the devil" for from six to twelve months after entering the service. At posts where

grazing is good this is not noticed much; but where the animal puts in the long hours of the day standing on a picket line or getting kicked around a corral by the old stagers of the organization, it is very noticeable indeed.

When one organization is compared with another in reference to the horses and the amount of work they can do without losing spirit and flesh and the relative number on the sick-report at any given time, it will be found that the organization with the greatest number of old horses, say from eight to fourteen, is the one that has the advantage and the one that can be relied upon to "get there" and do things.

The three-, four-, five- and six-year-old horses in the service live upon "horse medicines and dressings," and are the ones usually dragged along at the tail end of the column by disgruntled and swearing troopers.

EDITOR'S NOTICE.

We call attention to our advertising pages. They have been selected with care, and with the purpose in view of calling attention and giving addresses of firms dealing in articles used by military men and their families. We will deem it a favor if in writing to any of the firms you will mention the JOURNAL.

The Colt's Patent Firearms Mfg. Co., Hartford, Conn., whose advertisement appears in this issue, is perhaps pre-eminently the one manufacturing institution in the country whose interest and support an Army publication properly values, not so much from the mercenary standpoint as from the standpoint of modern military science, and particularly as applied to lighter branches of ordnance and small arms. When others the world over have been discussing the possibility of automatic guns and producing more or less practical examples of them, the Colt's Company has been devoting its best attention to machine guns and pistols built on these lines, and so constructed as to be particularly applicable to the wants of the Army, and we venture to predict that the time will not be very far distant when every military and police organization of the country, as well as many other countries, will be fully equipped with the Colt Automatic Rapid-fire Machine Gun for heavy work and some form of the Automatic Pistol with a holster stock attachment to take the place of all individual small arms now in use. Be this as it may, it is a pleasure to us to feel that there is in this country a concern which both can and does bring to the development of the most modern equipment in the way of firearms for Cavalry and Infantry the skill born of scientific research and long experience.

There are very few food products which add as much to the comfort, health and efficiency of the soldier in the field as does "Evaporated Cream," which enables anyone in camp or on tramp to enjoy his cup of coffee or his breakfast food enriched with a delicious cream just as well as he could at home. This preparation is simply full-cream-milk free from all foreign additions, evaporated to a cream-like consistence, canned and so completely sterilized that it keeps perfect in all climates as long as the can remains closed. By addition of water it may be restored to its normal condition, when it furnishes a very refreshing beverage, and when used undiluted, it takes the place of dairy cream. It blends admirably with coffee and gives it a richness and delicate appearance not otherwise obtained. The process of preparing Evaporated Cream was originated in 1885 by the Helvetia Milk Condensing Co., of Highland, Ill., whose "Highland" brand is

well known to military men, since it is supplied in large quantities to the Commissary and Medical Departments of our Armies and Navies at home and abroad.

Among our advertisers is found the name of "Buzzacott," which to the Army is a familiar one. Buzzacott is the inventor and manufacturer of the Army field oven bearing his name. It is needless to point out to Army men its high qualities. It is regarded by the Army as the "first aid" to the weary and hungry soldier. It has been thoroughly tested and found, under varying conditions and circumstances, to meet the demands of the service. The inventor served an enlistment in Troop F, Fifth Cavalry, and while stationed at Fort Supply, Okla., decided to find an improvement over the old "Dutch" oven in use for so many years in the Army. His success was beyond expectation, and since the first appearance of the "Buzzacott," many important improvements have been made.

BOOK NOTICES AND EXCHANGES.

COMPANY TRAINING MADE EASY. By Captain H. C. Evans, Adjutant, Fourth Volunteers, B. N., Manchester Regiment. Gales & Polden's Military Series.

This is a small volume in which the author indicates the company training required by the Royal warrant for the efficiency of volunteers. This information has been placed in the form of lectures which can be delivered by company commanders.

TRUMPET AND BUGLE SOUNDS. (With words.) As used by the British service. Arranged by a British bandmaster. Gales & Polden's Military Series.

Camp and Barrack Call for officers is the first call to greet the eye upon opening the covers of this handy little volume, and these are the words:

"Officers, don't you hear the call sounding?
Sounding so brisk and gay?
It may mean a dressing down,
Or it may go the other way."

THE FURTHER TRAINING AND EMPLOYMENT OF MOUNTED INFANTRY AND YEOMANRY. By Major-General H. Harlam Parr, C.B., C.M.G. Gales & Polden's Military Series.

The author calls attention to the frequency with which infantry is used as mounted force, particularly in small expeditions, where hurried organization is a necessity. Most of the recommendations put forward have been given in a practical test in the service, and from these notes have been prepared for the assistance of officers who may find themselves entrusted with such a duty.

THE UNITED SERVICE MAGAZINE.

April, 1902. 1. Garrisoning Our Naval Basis, by Commander the Hon. H. N. Shore, R. N. 2. Coast Defense and the Fleet: A Reply, by "Garrison Gunner." 3. Some Facts about Port Arthur, by Sniper. 4. Old Attempts at Under-water War, by Major C. Field, R. M. L. I. B. 5. Pages from the Diary of a Boer Officer, by Another of Them. 6. Guerrilla or Partisan Warfare, by T. Miller Maguire, M.A., LL.D. 7. Some Ideas upon the Training of an Officer, by Major-General C. W. Robinson, C.B. 8. The Anti-patriotic Ulcer, by C. de Thierry. 9. Upper Uva, Ceylon, as a Station for British Troops, by R. G. A. 10. The Royal Reserve Regiments of 1900, by Reserve Officer.

May, 1902. 1. Cecil Rhodes, by the Editor. 2. Nelson's Portuguese Boatswain, by Commander E. T. Troubridge, R. N. 3. The Claims of the Accountant Officers of the Navy, by Fiat Justitia. The Royal Indian Marine, by a Naval Officer. 5. Pages from the Diary of a Boer Officer, by Another of Them. 6. Notes on the Evolution of Infantry Tactics, by Lieutenant-Colonel F. N. Maude, late R. E. 7. Essays on Artillery, by Captain C. Holmes Wilson, R. A. 8. The History and Present Position of the Field Howitzer, by R. F. A. 9. War Training at Home, by Captain R. F. Sorsbie, R. E. 10. The Army Medical Service: The Royal Warrant, by Brigade Surgeon Lieutenant-Colonel William Hill-Climo, M.D., Army Medical Staff, retired. 11. Officers and Men, by Horace Wyndham. 12. Hodson of Delhi: An Appreciation, by Percy-Cross Standing. 13. By the Western Line to Mafeking, by Rooi-Neck.

June, 1902. 1. The Naval Requirements of the Empire, by Rear-Admiral Oxford Churchill. 2. Fire Control in the Navy, by Zadock, R. N. 3. The "Britannia" Naval College, by "Cruiser." 4. Lieutenant Hordern's Prize Essay. 5. Notes on the Evolution of Infantry Tactics, by Lieutenant-Colonel F. N. Maude, late R. E. 6. Essays on Artillery, by Captain C. Holmes Wilson, R. A. 7. The History and Present Position of the Field Howitzer. 8. Report of the Committee on the Education and Training of the Officers of the Army, by T. Miller Maguire. 9. The Education of Officers, by Colonel M. J. King-Harman. 10. Officers and Professional Training, by Skipper. 11. Pages from the Diary of a Boer Officer. 12. The Russian Battle of Dorking, More Than Thirty Years After; or, A Christmas Dream.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE.

March, 1902. 1. A New Type of Battle-ship, by Lieut. Matt. H. Signor, U. S. N. 2. The Training-ship, by Lieutenant Edward L. Beach, U. S. Navy. 3. The Recruiting of the Navy Personnel, by Lieutenant Commander Roy C. Smith. 4. Range or Direction Indicator, by Lieutenant Armistead Rust, U. S. Navy. 5. Bethlehem Steel Company—Test of Conical and Cylindrical Breech-blocks, by J. F. Meigs. 6. Notes on the Method of Making the Scale for a 24-inch Sounding-tube of the Tanner-Blish Pattern, by Lieutenant H. E. Parmenter, U. S. Navy.

JOURNAL OF THE ROYAL UNITED STATES SERVICE INSTITUTION.

April, 1902. 1. The Town of Colesburg, Cape Colony, showing Coleskop in the Background. 2. Gold Medal Prize Essay. Subject: "What Should Be the Disposition of the Materiel and Personnel of the British Navy in Time of Peace, and How Can the Peace Strength be Most Readily Expanded to War Strength?" by Lieutenant Lionel H. Hordern, R. N., retired. 3. India's Power to Aid the Empire, by Major A. C. Yate, Twenty-ninth Baluche Infantry. 4. Military Observations on the War in South Africa, translated by permission, from the *Militär Wochenblatt*. 5. The Block-house System in South Africa, by Lieutenant-Colonel R. M. Holden, Fourth Bn., "The Cameronians."

May, 1902. 1. Two Views of H.M.S. "Woodcock" Ascending the Upper Yang-Tse. 2. The Advantages of Compulsory Service for Home Defense, together with a Consideration of Some of the Objections Which May be Urged against It, lecture by Mr. George Shee. 3. Is a Second-class or Smaller Battle-ship Desirable? lecture by Admiral Sir J. O. Hopkins, G.C.B. 4. Training Recruits at Regimental Dépôts, by Major A. W. A. Pollock, Second Provisional Battalion. 5. Correspondence: A Criticism on Lieutenant-Colonel Maude's Lecture, "Continental *versus* South African Tactics," by Lieutenant-Colonel C. B. Maine, R. E.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION.

February and March, 1902. 1. Training the Intelligence, etc., of Officers, and N. C. O.'s and Men, by Colonel L. W. Parsons, R. A. 2. Twelfth Battery, R. F. A., in China, by Captain J. F. I. H. Doyle, R. F. A. 3. A Consideration of the Different Duties of the Branches of the Royal Artillery, by Major T. R. C. Hudon, R. A. 4. Recent Development of Field Materiel on the Continent—France, by Captain R. L. Kenyon, R. A. 5. Field Glasses and Telescopes, by Lieutenant-Colonel T. V. W. Philips. 6. Signaling to Range Launches, by Captain C. N. Buzzard, R. A.

THE SEVENTH REGIMENT.

March, 1902. 1. The Coming Industrial Empire of Puget Sound, by D. B. Bogle. 2. Equipment and Methods of the Indian Dockyards, by A. C. Bowden. 3. Economy in Fuel Combustion and Steam Generation, by W. W. Christie. 4. Gold Mining and Milling in Western Australia, by A. G. Charleton. 5. Influence of the Exposition on the French Steel Industry, by Henry Guerin. 6. Actual Working of American Locomotives on British Railways, by C. Rous-Martin. 7. Engineering Opportunities in Central and Southwestern Asia, by A. H. Ford. 8. The Determination of Costs in Isolated Electric Plants, by P. R. Moses.

THE SEVENTH REGIMENT.

REVUE DU CERCLE MILITAIRE.

OUR DUMB ANIMALS.

REVUE DE CAVALERIE.

In Memoriam.

Colonel Abraham K. Arnold,

U. S. Army,

First President of the United States

Cavalry Association,

Died

At Cold Spring-on-Hudson,

New York,

November 23, 1901.

A WORD FROM GENERAL MERRITT.

STEAMER "FRIEDRICH DER GROSSE,"
AT SEA, April 21, 1902.

I have been requested by the Executive Council of the United States Cavalry Association to write, as the President of the Association, an introduction to the first number of the CAVALRY JOURNAL, which is shortly to be re-published. This re-publication is to be commenced by the enthusiastic decision of a majority of the members of the Association.

I write this introduction gladly, with the wish that I had the requisite ability to place the matter in the strongest light. It is not necessary for me to enter into the causes which account for the non-appearance of the JOURNAL since December, 1899. The Spanish-American War and the dispersion of the Cavalry on its legitimate service during that war are ample reasons for the discontinuance of the publication .

The re-publication of the JOURNAL seems to be a fitting occasion to impress on the Cavalry of the Army the necessity for renewed effort to make the JOURNAL a fit representative of the increased and new element of the service.

The work done by the Cavalry in Cuba, Porto Rico and the Philippines during the Suanish War, both mounted and on foot, demonstrates an increased sphere of action and usefulness, and has taught us lessons which prove that the opinions formed by our former officers of cavalry were correct, and that cavalry can be educated to fight on foot as well as on horseback.

This lesson is impressed by the war between the English and the Boers in South Africa. It is our duty to elaborate these lessons. The increase of the cavalry arm of the service and the proportion of cavalry strength in the Army serve to impress this lesson. Everything points to the greater importance of the Cavalry, as considered in modern warfare, and of its growing utility. The celerity of its movements, even though the character of the terrain may require its action on foot, is much to its advantage in modern wars.

We have now in this country the *United Service Journal*, representative more especially of the Infantry of the Army, the *Artillery*

Journal and the CAVALRY JOURNAL. These are all necessary under the changed conditions of the Army. It had been proposed to abandon the publication of the CAVALRY ASSOCIATION JOURNAL, but I am glad to say the proposition has not been concurred in.

The good effect of an association like that which has been in existence and is now to be resumed with the publication of the JOURNAL is bound to be of importance in the future.

Let every cavalry officer, though he may subscribe to and support to the extent of his ability the other publications, do his utmost for the CAVALRY JOURNAL, and I am sure that success will crown the effort.

I have my doubts as to the wisdom of establishing branches of the parent association at small posts. But at all posts let the officers write and send what they have written to the JOURNAL, and let the editor select all or part of the production for publication. Let all exert themselves in the direction of success, and success is sure to follow.

I have been told by more than one officer whose advancement in the Cavalry service has been marked, THAT MUCH OF THE SUCCESS WAS DUE TO THE INFLUENCE OF THE STUDIES INDUCED BY THE CAVALRY ASSOCIATION.

WESLEY MERRITT,
Major-General U. S. Army,
President U. S. Cavalry Association.

PRIZE ESSAY.

I.

At a meeting of the Executive Council of the Cavalry Association, held April 21, 1902, the following resolutions were adopted:

Resolved, That the Cavalry Association continue the undertaking of producing a history of the American Cavalry, in the form of a series of historical essays, to be published in the JOURNAL; and to this end be it further

Resolved, That the Cavalry Association does hereby offer a prize of $100.00 in cash for the second essay of the series.

The prize will be awarded under the following conditions:

1. The competition to be open to all persons.
2. The essays not to exceed 30,000 words.
3. Three typewritten copies of the essay to be sent in a sealed envelope to the Secretary on or before April 1, 1903.

4. The essay to be signed *only* with the *nom de plume* adopted by the author. A sealed envelope bearing the *nom de plume* on the outside, and enclosing full name and address, must accompany the essay. This envelope will be opened in the presence of the Council after the decision of the Board of Award has been made.

5. The successful essay shall become the unconditional property of the Cavalry Association, and will be published in the CAVALRY JOURNAL.

6. The second essay shall receive honorable mention, and if desired by the Council, shall, upon payment of $25.00 to the writer, become the unconditional property of the Cavalry Association.

7. The prize shall be awarded upon the recommendation of a Board, consisting of three suitable persons chosen by the Publication Committeee, who shall be requested to desiginate the *essay deemed worthy of the prize,* and also *the essay deemed worthy of honorable mention.*

Should members of the Board determine that no essay is worthy of the prize, they may designate one deemed worthy of honorable mention. Should the Board deem proper, it may recommend neither prize nor honorable mention.

The recommendations of individual members of the Board will be considered by the Council as strictly confidential.

In determining the essay worthy of the prize the Board will consider, *first,* historical accuracy; *second,* professional excellence; *third,* literary merit.

II.

The subject selected by the Publication Committee for the second essay of the series is as follows: "The History of the Cavalry of the Army of Northern Virginia (Confederate) During the Civil War." The subject is to include organization, armament, equipment and supply, as well as the operations of the Cavalry.

L. C. SCHERER,
Captain Fourth Cavalry,
Secretary.

CONSTITUTION OF THE UNITED STATES CAVALRY ASSOCIATION.

Adopted at Fort Leavenworth, Kansas, January 17, 1898.

ARTICLE I.

TITLE.

This society shall be known as "The United States Cavalry Association."

ARTICLE II.

HEADQUARTERS.

The headquarters shall be at Fort Leavenworth, Kansas.

ARTICLE III.

DESIGN.

The aim and purpose of this Association shall be to unite all persons directly or indirectly interested in the Cavalry arm of the military service, for the professional improvement of its members and the advancement of the mounted service generally.

ARTICLE IV.

MEMBERSHIP.

SECTION 1. This Association shall consist of (1) regular members, (2) associate members, and (3) honorary members.

SEC. 2. The following shall be eligible to regular membership: (*a*) Commissioned officers of the Cavalry of the regular Army. (*b*) Former commissioned officers of the Cavalry of the regular or volunteer services, provided their records are honorable. (*c*) General officers of the regular Army and former general officers.

SEC. 3. The following are eligible to associate membership: (*a*) Persons who are, or who ever have been, commissioned officers of honorable record in the regular Army (other than those mentioned in Section 2), or in the Navy. (*b*) Persons who are, or who ever have been, commissioned officers of honorable record of the National Guard of any State or Territory. (*c*) Former general officers and former commissioned officers of Cavalry of honorable record in the Confederate Army.

SEC. 4. Honorary members may be elected from men distinguished in military and naval service and from eminent men of learning. They shall be elected as such for the period of five years. Honorary members shall be elected by the Executive Council, and it shall require a two-thirds vote of all members of the Council to elect.

SEC. 5. Any person eligible to regular or associate membership may become such upon making application to the Secretary, accompanied with the amount of the annual dues for the first year ($2.00), and upon furnishing satisfactory evidence of his eligibility to such membership.

SEC. 6. Any person or society may become a subscriber for the quarterly JOURNAL; and all persons paying for and receiving the JOURNAL, but who are not regularly admitted and entered as regular, associate, or honorary members, shall be considered as subscribers merely.

SEC. 7. Any member may withdraw from the Association at any time by tendering his resignation in writing, provided he be not in arrears.

SEC. 8. Any person may be expelled from the Association for cause by the Executive Council, but it shall require the consent of two-thirds

of the members of the Council, unless the cause be the non-payment of dues or other obligations to the Association, in which case a majority vote of the members of the Council present shall suffice. Any member may be expelled whose indebtedness to the Association is $4.00 or over.

SEC. 9. Membership shall date from the first day of the quarter in which the member joins, January 1st, April 1st, July 1st, October 1st, and his annual dues shall become payable on that date in each succeeding year.

ARTICLE V.

RIGHTS AND OBLIGATIONS OF MEMBERS.

SECTION 1. Every member of the Association, of whatever class, shall be entitled to one vote at all regular or special meetings of the Association. This vote may be cast in person or by proxy, in which latter case the authority therefor must be in writing.

SEC. 2. Regular members only shall be eligible to hold office, or to vote upon alterations of, or amendments to, this Constitution. With those exceptions, all members, of whatsoever class, shall have equal rights and privileges, and be subject to the same obligations, except that honorary members shall pay no annual dues.

SEC. 3. All members, of whatsoever class, shall receive the quarterly JOURNAL without other cost than the annual dues. The subscription price to non-members shall be two dollars per year in advance.

SEC. 4. The annual dues of all members, except honorary ones, shall be two dollars, payable at the beginning of each year of membership.

SEC. 5. Additional pecuniary obligations can be imposed upon the members only by an act of the Association at a regular or special meeting, a two-thirds vote of the members present or duly represented by proxy being required to carry such measures.

ARTICLE VI.

MEETINGS AND ELECTIONS.

SECTION 1. The regular meetings of the Association shall be held once each year at Fort Leavenworth, Kansas, on the third Monday in January.

SEC. 2. Special meetings shall be called to meet at the same place by the President upon the written request therefor, signed by fifty members. When such special meetings are called, at least fifteen days' notice shall be given thereof to each member by the Secretary. The same notice shall be given in the case of regular meetings also.

SEC. 3. Twenty per cent of the total membership of the Association, either present in person or represented by proxy, shall constitute a quorum for the transaction of business.

SEC. 4. The annual election of officers shall take place at the regular annual meeting of the Association. The election shall be by ballot, and a plurality of all votes cast in person or by proxy shall elect.

ARTICLE VII.

OFFICERS.

SECTION 1. The elective officers of the Association shall be: a President, a Vice-President, and five members of the Executive Council. Their terms of office shall be one year, or until their successors are elected, and all except the President shall be residents of Fort Leavenworth, Kansas.

SEC. 2. The appointive officers of the Association shall be two; viz., an Editor, a Secretary and Treasurer. They shall be appointed by the Executive Council, and shall hold office at the pleasure of the same.

SEC. 3. The duties of the officers shall be such as usually pertain to their respective offices, and such additional ones as may be prescribed in this Constitution or the By-laws enacted by the Executive Council under the authority granted by this Constitution.

ARTICLE VIII.

EXECUTIVE COUNCIL.

SECTION 1. The Executive Council shall consist of the President, the Vice-President, the five elected members, the Editor, and the Secretary and Treasurer. But when the President is not a resident of Fort Leavenworth, he shall for all purposes be considered as not belonging to the Executive Council, unless actually present.

SEC. 2. The Executive Council shall meet from time to time at the call of its Chairman, who shall be the senior member of the Council present at the headquarters of the Association.

SEC. 3. Five members shall constitute a quorum for the transaction of business. But if through the removal of officers from Fort Leavenworth, or other cause, the Council be reduced below five members, such number as remain shall constitute a quorum for the purpose of filling vacancies, but for this purpose only.

SEC. 4. It shall require a majority vote of all members of the Council to carry and proposition, except an adjournment, which shall require a majority of those present.

SEC. 5. The several members of the Executive Council shall have an equal voice and vote in the determination of all questions acted upon by the Council, except that the Editor and the Secretary and Treasurer shall have no vote upon questions connected with their own appointment or removal, or their own compensation.

SEC. 6. The Executive Council shall be responsible for the general administration of the affairs of the Association. To this end they are empowered to carry out any measures whatsoever, which, in their judgment, seem expedient in order to further the interests of the Association, or to attain the ends and aims of the organization; *Provided, however,* That such measures do not conflict with any of the provisions of this Constitution. Within such limits the Council shall have power to make permanent regulations, which they shall in such cases designate as By-laws, in contradistinction to their ordinary regulations, and such By-laws shall be binding upon the Association and its members, and shall remain in force until duly revoked.

SEC. 7. The Executive Council shall have power to fill vacancies for unexpired terms, which may occur in its membership.

SEC. 8. The Executive Council shall carefully examine and audit the accounts of the Secretary and Treasurer as soon as practicable after the close of the fiscal year, and at such other times as they may deem expedient.

SEC. 9. Funds of the Association can be expended only upon the order of the Executive Council, and money paid out or obligations incurred by the Secretary and Treasurer without such order shall be at his own risk, and if not subsequently approved by the Council, he shall make the same good to the Association; but the auditing and approving of the accounts by the Council shall be considered as authorizing all transactions and expenditures previous to such action.

ARTICLE IX.

THE JOURNAL.

The Association shall publish a JOURNAL devoted to the interests of the organization, and in furtherance of its ends and aims, as laid down in Article III. of this Constitution. This JOURNAL shall be published quarterly, and, as far as practicable, about the close of each quarter of the calendar (or fiscal) year.

ARTICLE X.

THE EDITOR.

The Editor shall edit the quarterly JOURNAL, and such other documents as may from time to time be published by the Association. In the performance of this duty he shall be subject to the supervision of the Executive Council, to whom he shall be directly responsible.

ARTICLE XI.

THE SECRETARY AND TREASURER.

The duties of the Secretary and Treasurer shall be such as usually devolve upon such officers. He shall keep a journal of the proceedings of the Association, and a separate record of the proceedings of the Executive Council. He shall keep in form suitable for reference permanent records of the By-laws that may from time to time be enacted by the Executive Council. He shall be generally the organ of the Association in matters of finance, business and correspondence.

In the performance of these duties he shall be subject to the supervision of the Executive Council, to whom he shall be directly responsible. The books, papers and accounts pertaining to his office shall be always subject to examination by the Council. At each regular annual meeting he shall submit a report showing the financial condition of the Association at the time. Within thirty days after the close of each fiscal year of the Association (which shall be considered as identical with the calendar year) he shall submit to the Council a detailed report of the business transactions of his office during the preceding twelve months. This report shall show: the cash on hand at the beginning of the fiscal year; the receipts and expenditures during the year; the cash on hand at the close of the fiscal year; the assets of the Association; the outstanding obligations of the Association; the membership in the various classes at the beginning of the year and the gains and losses in the same during the year; such other matters as may be called for by the Council. He shall also make such additional reports at such times and upon such subjects as the Executive Council may desire.

ARTICLE XII.

In order to effect the transition from the old Constitution to this new one, the following sections are hereby enacted:

SECTION 1. Except as regards matters concerning which a different rule is herein prescribed, this Constitution shall go into effect upon the day of its adoption.

SEC. 2. Although life memberships are no longer contemplated, such as are in existence at the time of the adoption of this Constitution shall continue to exist under the same conditions as originally granted.

SEC. 3. Members who joined the Association previous to September 30, 1897, shall date from the first day of the calendar year, as originally prescribed; but the membership of such as have joined the Association subsequent to September 30, 1897, shall date from the first day of the quarter, exactly as if this Constitution had been in force at the time of joining.

SEC. 4. All who, under the old Constitution, were regular or associate members at the time of the adoption of this Constitution shall become such members under this Constitution, even though they might not be eligible under its provisions.

SEC. 5. Such persons as are honorary members at the time of the adoption of this Constitution shall become such under its provisions, and they shall be considered as having become such upon the date of the adoption of this Constitution.

ARTICLE XIII.

ALTERATION OF THE CONSTITUTION.

SECTION 1. The Constitution may be added to or amended by a two-thirds vote of the regular members present or properly represented by proxy, at an annual meeting of the Association. Proposed alterations shall be furnished the Secretary in writing, signed by five or more members, not less than three months prior to the meeting at which they are to be acted upon. The Secretary, under the direction of the Executive Committee, shall publish such proposed alterations to the Association not less than sixty days prior to said meeting.

THE UNITED STATES CAVALRY.

FIRST CAVALRY—COLONEL ALMOND B. WELLS.
Adjutant, CAPTAIN SAMUEL B. ARNOLD; Quartermaster, CAPTAIN JACOB G. GILBREATH; Commissary, CAPTAIN MILTON F. DAVIS.
HEADQUARTERS, MANILA, P. I.
Troops—A, B, C, D, I, K, L, M, Manila, P. I.; E, Fort Washakie, Wyo.; F, G, Fort Yellowstone, Wyo.; G, Fort Keogh, Mont.

SECOND CAVALRY—COLONEL ELI L. HUGGINS.
Adjutant, CAPTAIN THOMAS J. LEWIS; Quartermaster, CAPTAIN WILLIAM F. CLARK; Commissary, CAPTAIN FREDERICK W. SIBLEY.
HEADQUARTERS, FORT MYER, VA.
Troops—A, B, C, D, I, K, Fort Ethan Allen, Vt.; E, F, G, H, Fort Myer, Va.; L, M, Fort Sheridan, Ill.

THIRD CAVALRY—ALBERT E. WOODSON.
Adjutant, CAPTAIN HENRY L. RIPLEY; Quartermaster, ——
Commissary, CAPTAIN GEORGE H. MORGAN.
HEADQUARTERS, FORT ASSINIBOINE, MONT.
Troops—A, B, C, D, G, H, K, L, M, Under orders to United States; E, F, Yosemite National Park, Cal.

FOURTH CAVALRY—COLONEL CAMILLO C. C. CARR.
Adjutant, CAPTAIN GEORGE H. CAMERON; Quartermaster, GEORGE O. CRESS.
HEADQUARTERS, FORT RILEY, KAN.
Troops—A, B, C, D, Fort Riley, Kan.; E, F, G, H, Fort Leavenworth, Kan.; I, K, L, M, Jefferson Barracks, Mo.

FIFTH CAVALRY—COLONEL WILLIAM A. RAFFERTY.
Adjutant, CAPTAIN EDWIN P. ANDRUS; Quartermaster, CAPTAIN NATHANIEL F. MCCLURE; Commissary, CAPTAIN LAWRENCE J. FLEMING.
HEADQUARTERS, MANILA, P. I.
Troops—A, B, C, D, I, K, L, M, Manila, P. I.; E, F, G, H, San Francisco, Cal.

SIXTH CAVALRY—COLONEL THEODORE J. WINT.
Adjutant, CAPTAIN JOHN W. FURLONG; Quartermaster, CAPTAIN GEORGE L. BYRAM.
HEADQUARTERS, MANILA, P. I.
All troops of regiment serving in Philippine Islands.

SEVENTH CAVALRY—COLONEL THEODORE A. BALDWIN.
Adjutant—— Quartermaster, CAPTAIN SOLOMON P. VESTAL;
Commissary, CAPTAIN WM. H. PAYNE.
HEADQUARTERS, CHICKAMAUGA PARK, GA.
All troops of regiment stationed at Chickamauga Park, Ga.

EIGHTH CAVALRY—COLONEL LOUIS H. RUCKER
Adjutant, CAPTAIN ANDREW G. HAMMOND; Quartermaster, STEPHEN L. H. SLOCUM.
HEADQUARTERS, JEFFERSON BARRACKS, MO.
Troops—A, B, C, D, Fort Sill, Okl.; E, F, G, H, Jefferson Barracks, Mo.; I, K, L, M, Fort Riley, Kan.

NINTH CAVALRY—COLONEL EDWARD S. GODFREY.
Adjutant, CAPTAIN GEORGE W. READ; Quartermaster, CAPTAIN FRANK S. ARMSTRONG
HEADQUARTERS, MANILA, P. I.
All troops of regiment serving in Philippine Islands.

TENTH CAVALRY—COLONEL J. AUGUR.
Adjutant, CAPTAIN ROBERT G. PAXTON; Quartermaster, CAPTAIN CHAS. H. GRIERSON.
HEADQUARTERS, FORT ROBINSON, NEB.
Troops—A, B, C, D, I, K, L, M, Fort Robinson, Neb.; E, F, G, H, *en route* to U. S.

ELEVENTH CAVALRY—COLONEL FRANCIS MOORE.
Adjutant, CAPTAIN STEPHEN H. ELLIOTT; Quartermaster, CAPTAIN LETCHER HARDEMAN.
HEADQUARTERS, MANILA, P. I.
All troops of regiment serving in the Philippine Islands.

TWELFTH CAVALRY—COLONEL WM. C. FORBUSH.
Adjutant, CAPTAIN ROBERT E. L. MICHIE; Quartermaster, CAPTAIN JOSEPH E. CUSACK; Commissary, CAPTAIN EDWARD D. ANDERSON.
HEADQUARTERS, FORT CLARK, TEX.
Troops—A, B, C, D, Fort Sam Houston, Tex.; E, F, G, H, I, K, L, M, Fort Clark, Tex.

THIRTEENTH CAVALRY—COLONEL E. M. HAYES.
Adjutant, CAPTAIN WILLIAM J. GLASGOW; Quartermaster, CAPTAIN WALTER M. WHITMAN; Commissary, CAPTAIN THOMAS M. CORCORAN.
HEADQUARTERS, FORT MEADE, S. D.
Troops—A, Fort Yellowstone, Wyo; B, Fort Meade, S. D.; C, Fort Yellowstone, Wyo.; D, Fort Meade, S. D.; F, F, Fort Keogh, Mont.; G, H, Fort Assiniboine, Mont.; I, K, Fort Meade, S. D; L, Fort Yates, N. D.; M, Fort Meade, S. D.

FOURTEENTH CAVALRY—COLONEL THOMAS C. LEBO.
Adjutant, CAPTAIN MATTHEW C. SMITH; Quartermaster, CAPTAIN OREN B. MEYER.
HEADQUARTERS, FORT GRANT, ARIZONA.
Troops—A, Fort D. A. Russell, Wyo.; B, Fort Huachuca, Ariz.; C, Fort Mackenzie, Wyo.; D, Fort Huachuca, Ariz.; E, Fort Russell, Wyo.; F, G, Fort Wingate, N. M.; H, Fort Logan, Col.; I, K, L, M, Fort Grant, Ariz.

FIFTEENTH CAVALRY—COLONEL WM. M. WALLACE.
Adjutant, CAPTAIN FRANCIS C. MARSHALL; Quartermaster, CAPTAIN LINCOLN C. ANDREWS; Commissary, CAPTAIN KENZIE W. WALKER.
HEADQUARTERS, MANILA, P. I
All troops of regiment serving in Philippine Islands.

CAVALRY OF THE NATIONAL GUARD.

NOTE.—The following have no mounted troops: Alaska, Arizona, Delaware, District of Columbia, Florida, Idaho Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Nevada, North Carolina, South Dakota, West Virginia, Vermont.

ALABAMA.

FIRST CAVALRY SQUADRON—MAJOR JAMES T. BECK.
Adjutant, Captain A. G. Forbes. Quartermaster, Captain J. F. Burns.
Commissary, Captain L. L. Lassiter.
HEADQUARTERS, CAMDEN.
Troop "A," Montgomery, Captain W. O. Garside; Troop "B," Camden, Captain J. D. Jenkins; Troop "C" Selma, Captain V. B. Atkins; Troop "D," Birmingham, Captain E. J. McCrossin.

ARKANSAS.

Troop "A," Panola, Major M. C. House; Troop "B," Captain S. W. Murtishaw.

CALIFORNIA.

Troop "A," San Francisco, Captain Chas. Jansen; Troop "B," Sacramento, Captain W. L. Kay; Troop "C," Salinas, Captain Chas. J. Fulle; Troop "D," Los Angeles, Captain John D. Fredericks.

COLORADO.

FIRST SQUADRON OF CAVALRY—MAJOR JAMES H. BROWN, COMMANDING, DENVER.
First Lieutenant A. M. Chase, Adjutant.

Troop "A," Grand Junction, Captain J. M. Kennedy, First Lieutenant R. E. Meserve, Second Lieutenant T. H. Van Buren; Troop "B," Denver, Captain Z. T. Hill, First Lieutenant F. A. Perry, Second Lieutenant W. F. Hayden; Troop "C," Denver, Captain H. D. Smith, First Lieutenant C. S. Card, Second Lieutenant J. G. Dickinson.

CONNECTICUT.

Troop "A," New Haven, Captain Luzerne Luddington, First Lieutenant William J. Bradnack, Second Lieutenant Robert J. Woodruff.

GEORGIA.

FIRST CAVALRY, COLONEL P. W. MELDRIM.

Lieutenant Colonel B. Gordon, Major J. S. Dozier, Major W. P. Waite, Major B. T. Sinclair.

HEADQUARTERS, SAVANNAH.

Troop "A," Savannah, Captain W. W. Gordon; Troop "B," McIntosh, Captain A. G. Cassels; Troop "C," Springfield, Captain C. F. Berry; Troop "D," Reidsville, Captain E. J. Giles; Troop "E," Johnson's Station, Captain J. W Hughes; Troop "F," Gainesville, Captain G. F. Canning, Troop "G," Darien, Captain R. D. Fox; Troop "I," Jesup, Captain H. W. Whaley; Troop "K," Augusta, Captain A. J. Twiggs; Troop "L," Atlanta, Captain Geo. M. Hope.

ILLINOIS.

FIRST CAVALRY.

HEADQUARTERS, 229 FRANKLIN STREET, CHICAGO.

FIELD AND STAFF.

Colonel Edward C. Young, Lieutenant Colonel Robert B. Fish, Major Frank B. Alsip, Major Milton J. Foreman; Adjutant, Captain Willis Counselman; Inspector of Rifle Practice, Captain Harry C. Cassidy; Quartermaster, Captain Leo Wampold; Commissary, Captain Burnett Chiperfield; Veterinary Surgeon, Captain Stewart S. Baker; Squadron Adjutant, First Lieutenant Martin Peterson and Walter A. Rosenfield; Surgeon, Major T. Jay Robeson; Assistant Surgeon, Captain Jesse Rowe; Assistant Surgeon, First Lieutenant Otis H. Maclay.

Troop "A," Chicago, Captain Joseph C. Wilson; Troop "B," Shirley, Captain Isaac F. Douglas; Troop "C," Chicago, Captain Emil A. Hoeppner; Troop "D," Springfield, Captain John W. Vorhes; Troop "E," Chicago, Captain Charles A. Alsip; Troop "F," Chicago, Captain Frederick B. Sherwin; Troop "G," Peoria, Captain Stephen O. Tripp; Troop "H," Macomb, First Lieutenant W. E. Shields.

MARYLAND.

Troop "A," First Brigade, Pikesville, Captain Joseph W. Shirley, First Lieutenant Redmund C. Stewart, Second Lieutenant C. Lyon Rogers, Jr.

MASSACHUSETTS.

FIRST BATTALION OF CAVALRY—MAJOR WILLIAM A. PERRINS, JAMAICA PLAIN.
Adjutant, First Lieutenant Albert E. Carr. Quartermaster, First Lieutenant John C. Kerrison, Revere.

HEADQUARTERS, BOSTON.

Troop "A," Boston, Captain Frank K. Neal.
Troop "D," Boston, Captain John Perrins, Jr.
Troop "F" (Unattached), West Chelmsford, Captain John J. Monahan.

MISSISSIPPI.

MISSOURI.

One troop formed in St. Louis, but not yet admitted to National Guard.

MONTANA.

Troop "A," Billings, Captain J. C. Bond.
Troop "B," Bozeman, Captain J. F. Keown.

NEBRASKA.

Troop "A," Seward, Captain Harley E. Bromwell.
South Omaha Independent Cavalry Troop, South Omaha, Captain William L. Holland.

NEW HAMPSHIRE.

Troop "A," Peterborough, Captain Charles B. Davis.

NEW JERSEY.

First Troop, Newark, Captain R. Wayne Parker.
Second Troop, Red Bank, Captain Edwin Field.

NEW MEXICO.

FIRST BATTALION OF CAVALRY—MAJOR ROBERT C. RANKIN.

Adjutant, First Lieutenant A. P. Tarkington; Quartermaster, First Lieutenant Robert Gross; Commissary, Second Lieutenant R. C. Reid; Chaplain, Captain Geo. Selby.

HEADQUARTERS, EAST LAS VEGAS.

Troop "A," East Las Vegas, Captain W. C. Reid; First Lieutenant James G. McNary; Second Lieutenant Geo. A. Fleming.
Troop "E," Santa Fé (not reorganized).

NEW YORK.

SQUADRON "A"—MAJOR OLIVER B. BRIDGMAN.

Adjutant, First Lieutenant Robert C. Lawrence; Quartermaster, First Lieutenant Louis V. O'Donohue.

HEADQUARTERS, NEW YORK CITY.

First Troop, New York City, Captain William C. Cammann; Second Troop, New York City, Captain Howard G. Badgley; Third Troop, New York City, Captain Herbert Barry.
Troop "B," Albany, Captain Edward J. Wheeler.
Troop "C," Brooklyn, Captain Charles I. De Bevoise.

NORTH DAKOTA.

FIRST BATTALION OF CAVALRY—MAJOR WM. H. MAKEE, COMMANDING, KENMARE.

Captain Steven S. Howard, Assistant Surgeon, Bottineau. First Lieutenant Albert H. MaKee, Adjutant, Kenmare.
Troop "A," Dunseith, Captain Joseph D. Eaton.

OHIO.

Troop "A," Cleveland, Captain Frank E. Bunts.
Troop "B," Columbus, Captain Frank H. Beverly.

OREGON.

Troop "A," Lebanon, Captain C. H. Young.
Troop "B," Sumpter, discharged January 21, 1902.

PENNSYLVANIA.

First Troop, Philadelphia City Cavalry, Philadelphia, Captain John C. Groome.
Second Troop, Philadelphia City Cavalry, Philadelphia, Captain Frank Earle Schermerhorn.
Sheridan Troop, Tyrone, Captain C. S. W. Jones.
Governor's Troop, Harrisburg, Captain Frederick M. Ott.

RHODE ISLAND.

FIRST SQUADRON OF CAVALRY—MAJOR WM. A. MAYNARD.

Adjutant, First Lieutenant Leo F. Nadeau; Quartermaster, First Lieutenant Lucius H. Newell.

HEADQUARTERS, PAWTUCKET.

Troop "A," Pawtucket, Captain Charles H. Allenson.
Troop "B," Providence, Captain John J. Richards.

SOUTH CAROLINA.

FIRST REGIMENT, SOUTH CAROLINA VOLUNTEER CAVALRY.

HEADQUARTERS, GEORGETOWN.

FIELD AND STAFF.

Colonel J. R. Sparkman, Lieutenant-Colonel Chas. W. Collock, Major S. A. Marvin, Major W. T. Ellerbe, Adjutant J. W. Doar, Judge Advocate M. W. Pyatt, Surgeon D. S. Black, Quartermaster P. H. McMaster; Paymaster A. M. Brailsford; Adjutant, Third Battalion, J. D. West.
Troop "A," Edgefield, Captain N. G. Evans.
Troop "B," Edisto Island, Captain M. M. Seabrook.
Troop "C," Panola, Captain R. C. Richardson, Jr.

Troop "D," St. Paul, Captain A. J. Richbourg.
Troop "E," Charleston, Captain Thos. S. Sinkler.
Troop "F," Walterboro. Captain D. C. Heyward.
Troop "G," Gillisonville, Captain W. A. Sauls.
Troop "H," Eutawville, Captain R. G. Causey.
Troop "I," Levy, Captain R. G. W. Bryan.
Troop "K," Sampit, Captain B. O. Bourne.
Troop "L," Conway, Captain L. D. Long.
Troop "M," Monck's Corner, Captain W. T. Owens.
Troop Detached, Georgetown, Captain H. T. McDonald.

TEXAS.

FIRST CAVALRY SQUADRON—MAJOR CHURCHILL TOWLES, HOUSTON.

Adjutant, First Lieutenant Ivan Murchison, Houston; Quartermaster, First Lieutenant John W. Heflin, Austin; Assistant Surgeon, First Lieutenant J. L. Short, Houston.

HEADQUARTERS, HOUSTON.

Troop "A," Houston, Captain W. W. Cockrell.
Troop "C," Austin, Captain D. D. Smyth.
Troop "D," Corsicana, Captain W. H. Murphy.
It is hoped to increase the number of troops to six during the year.

TENNESSEE

Troop "A," Nashville, Captain George F. Hagar.

UTAH.

Troop "A," Salt Lake City, Captain George F. Summers.

VIRGINIA.

Troop "B," Surry, Captain Harry C. Land.

WASHINGTON.

Troop "B," Tacoma, Captain Everett G. Griggs.

WISCONSIN.

Troop "A," Milwaukee, Captain Robert W. Mueller.

WYOMING.

Cavalry Troop, Cheyenne, Captain Robert La Fontaine.

LIST OF REGULAR MEMBERS, UNITED STATES CAVALRY ASSOCIATION.

GENERAL OFFICERS.

MAJOR-GENERALS.

Young, Samuel B. M.
Chaffee, Adna R.

BRIGADIER-GENERALS.

Wade, James F.
Sumner, Samuel S.
Bell, J. Franklin.

ADJUT'NT-GENER'L'S DEPARTMENT.

Colonels.

Babcock, John B.
Hall, William P.
Carter, William H.

Lieutenant-Colonel.

Johnston, John A.

Majors.

Parker, James.
Fountain, Samuel W.
McClernand, Edward J.

INSPECT'R-GENER'L'S DEPARTMENT.

Colonels.

Vroom, Peter D.
Sanger, Joseph P.

Lieutenant-Colonel.

Knox, Thomas T.

Major.

West, Frank.

JUDGE-ADVOCATE-GENERAL'S DEP'T.

Brigadier-General.

Davis, George B.

Lieutenant-Colonel.

Crowder, Enoch H.

QUARTERMASTER'S DEPARTMENT.

Lieutenant-Colonel.

Pond, George E.

Majors.

Hodgson, Frederick G.
Bellinger, John B.
Aleshire, James B.
Bingham, Gonzalez S.

Captains.

Cruse, Thomas
Knight, John T.
Carson, John M., jr.
Wood, Winthrop S.
Williamson, Geo. McK.
Sewell, Robert.
Slavens, Thomas H.
Schofield, Richm'd McA.
Walcutt, Charles C.
White, George P.
Crabbs, Joseph T.

SUBSISTENCE DEPARTMENT.

Major.

Brainard, David L.

Captains.

Bean, Wm. H.
Hart, Wm. H.
Davis, Alexander M.
Gallagher, Hugh J.

PAY DEPARTMENT.

Brigadier-General.

Bates, Alfred E.

Lieutenant-Colonel.

Dodge, Francis S.

Captain.

Whipple, Herbert S.

CORPS OF ENGINEERS.

Captain.

Potter, Charles L.

FIRST CAVALRY.

Majors.

Ward, Frederick K.
Woodward, Samuel L.
Bomus, Peter S.

Captains.

Galbraith, Jacob G.
Brown, Wm. C.
Brown, Oscar J.
Landis, J. F. Reynolds.
Mills, Albert L.
Scott, William S.
Goode, George W.
Wright, Edmund S.
Rivers, William C.
Hartman, John D. L.
Davis, Milton F.
Lindsley, Elmer
Arnold, Samuel B.
Sills, Wm. G.
Anderson, AlvordVanP.

First Lieutenants.

Drake, Charles B.
Hazzard, Russell T.
Foy, Robert C.
Chapman, Leslie A. I.

Second Lieutenants.

Roscoe, David L.
Smith, Selwyn D.
Rodney, Walter H.

SECOND CAVALRY.

Colonel.

Huggins, Eli L.

Lieutenant-Colonel.

Dimmick, Eugene D.

Major.

Schuyler, Walter S.

Captains.

Sibley, Frederick W.
Fuller, Alfred M.
Hoppin, Curtis B.
Lewis, Thomas J.
Foltz, Frederick S.
Gardner, John H.
Stevens, Charles J.
Sargent, Herbert H.
Trout, Harry G.
Winn, John S.
Clark, William F.
Herron, Joseph S.
Harrison, Ralph.

First Lieutenants.

Kochersperger, Steph. M
Pope, Francis H.
Harvey, Charles G.
Smith, Gilbert C.
Knox, Thomas M.
Martin, Walter F.
Lynch, Frank E.

Second Lieutenant.

Collins, Robert L.

Veterinary Surgeon.

Lusk, William V.

THIRD CAVALRY.

Colonel.

Woodson, Albert E.

Lieutenant-Colonel.

Swigert, Samuel M.

Majors.

Steever, Edgar Z.
Hein, Otto L.

Captains.

Ripley, Henry L.
Morgan, George H.
Boughton, Daniel H.
Johnson, Franklin O.
McDonald, John B.
Rice, Sedgwick.
Hedekin, Charles A.
Tate, Daniel L.
Barton, Frank A.
Conrad, Julius T.
Pattison, Harry H.

First Lieutenants.

Chitty, William D.
Sirmyer, Edgar A.
Babcock, Conrad S.
Comly, George B.
Maize, Sidney D.
Kimball, Gordon N.

FOURTH CAVALRY.

Colonel.

Carr, Camillo C. C.

Lieutenant-Colonel.

Augur, Jacob A.

Majors.

Rodgers, Alexander.
Murray, Cunliffe H.
Edwards, Frank A.

Captains.

Lockett, James.
Rivers, Tyree, R.
Cameron, George H.
Cress, George O.
Hughes, James B.
Brown, Robert A.
Koehler, Lewis M.
Stewart, Cecil.
Harris, Floyd W.
Scherer, Louis C.
Winans, Edwin B., jr.
O'Shea, John
Rutherford, Sam'l McP.

First Lieutenants.

Kelly, William, jr.
Summerlin, George T.
Boyd, Charles T.
Arnold, Frederick T.
Munro, James N.
Purviance, Samuel A.
McCaskey, Douglas.
Holbrook, Lucius R.
Mowry, Philip.
Ruggles, Francis A.

Second Lieutenants.

Degen, John A.
Fortescue, Granville R.
Perkins, Edward O.
Henry, James B.

FIFTH CAVALRY.

Colonel.

Rafferty, William A.

Lieutenant-Colonel.

Hatfield, Charles A. P.

Majors.

Paddock, George H.
Watts, Charles H.
Wainwright, Robert P. P

Captains.

Bishop, Hoel S.
Andrus, Edwin P.
Wheeler, Homer W.
Swift, Eben.
Foster, Fred W.
Goldman, Henry J.
Macomb, Augustus C.
Bryan, Roger B.
Holbrook, Willard A.
Traub, Peter E.
Jenkins, John M.
McClure, Nathaniel F.
Fleming, Lawrence J.
Nissen, August C.

First Lieutenant.

McClintock, John.

SIXTH CAVALRY.

Colonel.

Wint, Theodore J.

Lieutenant-Colonel.

Anderson, George S.

Majors.

Beck, Wm. H.
Gresham, John C.
Pitcher, John.

Captains.

Cheever, Benj. H.
Blocksom, Augustus P.
Sands, George H.
Allen, Henry T.
Forsyth, William W.
Steele, Matthew F.
Cole, James A.
Byram, George L
Howze, Robert L.
Ryan, John P.
Rhodes, Charles D.
Furlong, John W.

SEVENTH CAVALRY.

Lieutenant-Colonel.

Edgerly, Winfield S.

Majors.

Godwin, Edward A.
Varnum, Charles A.

Captains.

Scott, Hugh L.
Sickel, Horatio G.
Slocum, Herbert J.
Waterman, John C.
Beach, Francis H.
Vestal, Solomon P.
Anderson, Edward.
Butler, Matthew C., jr.
Paine, Wm. H.
Averill, Nathan K.
Mercer, William A.
Hawkins, Clyde E.

First Lieutenant.

Mitchell, Geo. E.

EIGHTH CAVALRY.

Colonel.

Rucker, Louis H.

Lieutenant-Colonel.

Morton, Charles.

Majors.

Sprole, Henry W.
Stanton, William.
Ayres, Charles G.

Captains.

Shunk, William A.
Gaston, Joseph A.
Hammond, Andrew G.
Dickman, Joseph T.
Slocum, Stephen L. H.
Duff, Robert J.
Sayre, Farrand.
Barnum, Malvern H.
Evans, Ellwood W.
Donaldson, Thos. Q., jr.
Stockle, George E.
Sawtelle, Charles G.
Saxton, Albert E.

First Lieutenants.

Lott, Abraham G.
Wesson, Charles M.
Roberts, Hugh A.
Oliver, Llewellyn.
Wesson, Charles M.
Kirkman, Hugh.
Otis, Frank J.
Coxe, Alexander B.

Second Lieutenants.

Smith, Talbot.
Terrell, Henry S.

NINTH CAVALRY.

Colonel.

Godfrey, Edward S.

Lieutenant-Colonel.

Kerr, John B.

Majors.

Garrard, Joseph
Wright, Henry H.
Gale, George H. G.

Captains.

Beach, William D.
McBlain, John F.
Fuller, Alvarado M.
Walsh, Robert D.
Read, George W.
Nance, John T.
Bigelow, Mortimer.
Sievert, Herman A.

First Lieutenant.

Miller, Alexander M.

TENTH CAVALRY.

Colonel.

Whitside, Samuel M.

Lieutenant-Colonel.

Hughes, Martin B.

Majors.

Stedman, Clarence A.
Scott, George L.
Fuller, Ezra B.

Captains.

Bigelow, John, jr.
Read, Robert D., jr.
Grierson, Charles H.
Watson, James W.
Freeman, Samuel D.
Macdonald, Godfrey H.
Hay, William H.
Paxton, Robert G.
Livermore, Richard L.
Fleming, Robert J.

First Lieutenant.

Kennington, Alfred E.

ELEV'NTH CAVALRY.

Colonel.

Moore, Francis

Major.

Finley, Walter L.

Captains.

West, Parker W.
Haines, Jonn T.
Brooks, Edward C.
Hardeman, Letcher.
Elliott, Stephen H.
Laughorne, George T.
Rowell, Melvin W.
Jones, Samuel G.
Harbord, James G.
Tomkins, Frank.
Clayton, Powell, jr.
White, Herbert A.

First Lieutenant.

King, Edward L.

TWELFTH CAVALRY.

Colonel.

Forbush, Wm. C.

Lieutenant-Colonel.

Dorst, Joseph H.

Majors.

Guilfoyle, John F.
Kendall, Henry F.

Captains.

Nicholson, William J
Littebrant, William T.
Hornbrook, James J.
Anderson, Edward D.
Rockenbach, Samuel D.
Cusack Joseph E.
Morgan, John M.
Michie, R. E. L.
Parker, F. Le J.
Morgan, John M.
Craig, J. W.

First Lieutenants.

Brees, Herbert J.
Cootes, Harry N.
Lee, Fitzhugh, Jr.
Case, F. L.
Long, John D.
Sharpley, Arthur G.
Lusk, Oscar S.
Morey, L. S.
Offley, E. M.
McDowell, R. E.
Potter, A. H.
Neilson, Frederick B.
Cass, L. W.
Troxel, O. C.
Mayo, C. R.

THIRTEENTH CAVALRY.

Lieutenant-Colonel.

Thomas, Earl D.

Majors.

Hunt, Levi P.
Jones, Thaddeus W.
Taylor, Charles W.

Captains.

Lochridge, P. D.
Dade, Alexander L.
Fenton, Charles W.
Corcoran, Thomas M.
Glasgow, William J.
Phillips, Ervin L.
Sweezey, Claude B.
Whitman, Walter M.
Babcock, Walter C.
Hyer, Benjamin B.

First Lieutenants.

Longstreet, James, jr.
Winters, William H.
Sturgis, Dexter
Moffet, William P.
Lowe, William L.
Steunenberg, George.
Smith, Walter H.
Bristol, Matt. C.
Dougherty, Clarence A.
Clopton, Wm. H., Jr.
Reynolds, Robert W.
Bull, Henry T.

Second Lieutenant.

McLane, Paul B.

FOURTEENTH CAVALRY.

Colonel.

Lebo, Thomas C.

Lieutenant-Colonel.

Cooper, Chas. L.

Majors.

Dodd, George A.
Hardie, Francis H.
O' onnor, Chas. M.

Captains.

Gray, Alonzo.
Overton, Clough.
Suplee, Edwin M.
McNamee, Michael M.
Meyer, Oren B.
Howard, Harold P.
Reeves, James H.
Walker, Kirby.
Adams, Sterling P.
Smith, Cornelius C.
Yates, William.
Smith, Mathew C.
Crosby, H. B.

First Lieutenants.

Day, Clarence R.
Heldt, Grayson V.
Hayne, Paul T., jr.
Lippincott, Aubrey,
Whitlock, Frank O.
Pilcher, Winston.
Russell, Geo. M.

Second Lieutenants.

Jordan, Harry B.
Riggs, Kerr T.
Read, John H., jr.
Jewell, James M.
Rethorst, Otto W.
Fisher, Ronald E.
Hume, John K.

FIFTEENTH CAVALRY.

Colonel.

Wallace, Wm. M.

Majors.

Hunter, George K.
Craig, Louis A.

Captains.

Pershing, John J.
Blunt, J. Y. Mason
Koester, Francis J.
Merillat, Alfred C.
Marshall, Francis C.
Hickok, Howard R.
Kirkpatrick, George W.
Andrews, Lincoln C.

INFANTRY.

Barber, Henry A., Capt, 28th Reg.

ARTILLERY.

Van Deusen, George W., Capt.

RETIRED LIST.

Bacon, John M., *col.*
Baird, William, *capt.*
Batson, Matthew A., *capt.*
Bell, James M., *brig.-gen.*
Bernard, Reuben F., *lt.-col.*
Biddle, James, *col.*
Boutelle, Frazier A., *capt.*
Braden, Chas., *1st lieut.*
Breck, Samuel, *brig.-gen.*
Burnett, George R., *1st lieut.*
Carlton, Caleb H., *brig.-gen.*
Carpenter, Louis H., *brig.-gen.*
Carr, Eugene A., *brig.-gen.*
Carroll, Henry, *col.*
Cole, George W., *capt.*
Compton, Charles E., *col.*
Converse, George L., *capt.*
Cooney, Michael, *col.*
Davis, Nick, *col.*
Evans, George H., *capt.*
Forsyth, James W., *maj.-gen.*
Grierson, Benjamin H., *brig.-gen.*
Harris, Moses, *maj.*
Hoyle, George G., *maj.*
Huntt, George G., *col.*
Jackson, Henry, *col.*
Jackson, James, *lt.-col.*
Kelley, Joseph M., *maj.*
Kellogg, Sanford C., *maj.*
Kendall, Henry M., *maj.*
Keyes, Alexander S. B., *maj.*
King, Chas., *capt.*
Lockwood, John A., *capt.*
Loud, John S., *maj.*
McGregor, Thomas, *col.*
Mackay, Edward G., *maj.*
Merritt, Wesley, *maj.-gen.*
Mills, Anson, *brig.-gen.*
Norvell, Stevens S., *lt.-col.*
Noyes, Henry E., *col.*
Oakes, James, *col.*
Olmstead, Freeman E., *1st lieut.*
Powell, Philip P., *capt.*
Richards, James R., *capt.*
Russell, Gerald, *maj.*
Sheridan, Michael V., *brig.-gen.*
Viele, Charles D., *col.*
Wagner, Henry, *lt. col.*
Waite, Henry De H., *1st lieut.*
Wesendorff, Max, *capt.*
Wheelan, James N., *col.*
Wheeler, Fred, *maj.*
Wood, Thomas J., *brig.-gen.*